EDUCATION

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New England Association of Colleges and Preparatory Schools

Twenty-Eighth Annual Meeting
October 31 and November 1, 1913
Harvard University.

PROGRAM

Friday Afternoon, October 31.
The New Lecture Hall, Harvard University.

3.00—General Subject:
Preparation for Teaching in Secondary Schools.

1. The Need of Better Preparation of Teachers for Secondary Schools.
   CHANCELLOR ELMER ELLSWORTH BROWN,
   New York University.
2. Present Facilities for the Preparation of Secondary School Teachers in New England.
   PROFESSOR RAYMOND MACFARLAND, Middlebury College.
3. The Aim and Standard for Preparation of Secondary School Teachers in New England.
   MR. WILLIAM ORR,
   Deputy Commissioner of Education, Massachusetts.

Discussion.

Friday Evening.

6.00—Dinner and Reception at the Harvard Union.

The guests of honor will be the Commissioners of Education of the several New England states, and the recently elected Commissioner of Education of the state of New York.

Dress informal. Social half hour from 6.00 to 6.30.

After dinner speakers—Superintendent Payson Smith of Maine, Superintendent Henry C. Morrison of New Hampshire, Superintendent Mason S. Stone of Vermont, Commissioner David Snedden

of Massachusetts, Commissioner Walter E. Ranger of Rhode Island, Commissioner John H. Finley of New York, and others.

Saturday Morning, November 1.

The New Lecture Hall, Harvard University.

9.00—Business Meeting.

1. Report of Executive Committee and Election of New Members.
2. Reports of the Secretary and Treasurer.
3. Report of the Nominating Committee and Election of Officers.
4. Report of the Delegates to the College Entrance Examination Board, Dr. William Gallagher, Dr. Huber Gray Buehler, Mr. George Franklin Cole, Principal William Colver Hill.
5. Report of the Committee appointed to Study Facilities Offered in New England for the Training of Secondary School Teachers. Deputy Commissioner William Orr, Dr. Charles E. Dennis, Professor James F. Messenger, Principal Alfred E. Stearns, Professor Raymond MacFarland.

10.00—General Subject:

Measurements of Efficiency in Instruction.

1. Measurements of Efficiency in College.
   PRESIDENT A. LAWRENCE LOWELL, Harvard University.
2. Measurements of Efficiency in Secondary Schools
   SUPERINTENDENT FRANK E. SPAULDING, Newton, Mass.
3. Is Scientific Accuracy Possible in Measurement of Efficiency in Instruction.
   PROFESSOR GEORGE DRAYTON STRAYER,
   Teachers College, Columbia University.

Discussion.

RECORDS OF THE BUSINESS MEETING.

The business session of the twenty-eighth annual meeting of the New England Association of Colleges and Preparatory Schools was held in the New Lecture Hall, Harvard University, November 1, 1913 at 9 o'clock. President Enoch C. Adams presided.

The minutes of the last meeting were read and approved.

The Executive Committee reported that it was the purpose of the Committee to present two amendments to the constitution at the next annual meeting:—

1. Changing the name of the Association to the New England Association of Colleges and Secondary Schools.

2. Making superintendents of schools—state and local—eligible for membership.

The Executive Committee nominated William Colver Hill, Principal of the Central High School, Springfield, Mass., to serve for four years as a delegate to the College Entrance Examination Board. Mr. Hill was elected.

N. Henry Black, Master of Science, Roxbury Latin School, was nominated by the Executive Committee to serve for one year as delegate to the College Entrance Examination Board, to complete the term left incomplete by the resignation of George Franklin Cole. Mr. Black was elected.

The following new members were nominated by the Executive Committee and elected to membership:

Leah B. Allen, Instructor in Astronomy, Wellesley College, Wellesley, Mass.

Sarah M. Averill, Teacher of Latin, High School, Worcester, Mass.

Louise F. Brown, Instructor in History, Wellesley College, Wellesley, Mass.

Madeleine Carret, Assoc. Professor of French, Wellesley College, Wellesley, Mass.

Catherine F. Crocker, Teacher of French, Norwich Free Academy, Conn.

Alban B. de Mille, Master of English, Milton Academy, Milton, Mass.

William P. Dickey, Teacher of History & German, Roxbury Latin School, Boston.

Fred S. Hitchcock, Principal Manual Training High School, New London, Conn.

Henry W. Holmes, Asst. Professor of Education, Harvard University.

Louise S. McDowell, Professor of Physics, Wellesley College.

A. Bertha Miller, Instructor in Latin, Wellesley College.

Margarethe Müller, Professor of German Language and Literature, Wellesley College.

Lillian M. Packard, Registrar Lasell Seminary, Auburndale, Mass.

Henry Pennypacker, Headmaster Public Latin School, Boston, Mass.

Mabel L. Robinson, Zoology, Wellesley College.

Clara E. Smith, Instructor in Mathematics, Wellesley College.

Laetitia M. Snow, Associate Professor of Botany, Wellesley College.

Sullivan Warren Sturgis, Groton School, Groton, Mass.

The Nominating Committee consisting of William Gallagher, Paul H. Hanus and Charles E. Fay, presented the following list of officers for the ensuing year and they were elected:

President, Ernest Carroll Moore.
First Vice-President, Mary Emma Woolley.
Second Vice-President, Alfred Ernest Stearns.
Secretary-Treasurer, Walter Ballou Jacobs.
Secretary-Treasurer Emeritus, Ray Greene Huling.
Executive Committee (with the preceding).
Abbott Lawrence Lowell.
Ellen Fitz Pendleton.
Eugene Dexter Russell.
Caleb Thomas Winchester.
James Arthur Tufts.

Report of the Delegates to the College Entrance Examination Board was presented by William Gallagher.

Report of the Committee appointed to Study Facilities Offered in New England for the Training of Secondary School Teachers was presented by Raymond MacFarland.

Frederick C. Ferry presented to the Association an outline of Minutes of the Sixth Conference of the National Conference Committee on Standards of Colleges and Secondary Schools.

On motion of William C. Hill the following resolution was adopted:

Resolved:— That this Association expresses to the authorities of Harvard University its appreciation of and gratitude for their hospitality in providing such excellent accommodations for this meeting.

Adjourned,
Walter Ballou Jacobs, *Secretary.*

The Need of Better Preparation of Teachers for Secondary Schools

By Chancellor Elmer Ellsworth Brown,
New York University.

SOCIETY in America has not yet really begun to take seriously the professional training of teachers for secondary schools. The burden of what I have to say today is that we must come to take this matter more seriously. It is hoped that the discussions of your influential body will help toward a better attitude toward this subject on the part of those who make the laws and regulations, as well as those who make the public sentiment, on which rest the improvement of our educational conditions.

The situation has changed for the better within the past few years, but the improvement must, I believe, be accelerated, if we are to meet the needs of our educational system.

When the first high school, regularly so-called, was organized, namely the English High School in Boston, in the year 1821, it was provided that the instructors in that school must be college graduates. The establishment of high schools, however, soon ran far ahead of the available body of college-trained teachers, and far ahead of the sentiment which would demand college training for such teachers. In the seventies and eighties of the past century, the south and west were liberally provided with such schools, largely taught by teachers of a very moderate grade of scholastic education, many of whom had graduated from the grammar school into a teaching position in some lower school, and after experience which was deemed successful in the lower position, were graduated into the coveted occupation of high school teacher. There was, besides, a fair sprinkling of highly educated and extremely able teachers, the most able and the most scholastically educated in any given school, being sometimes the same and not infrequently different individuals.

I know whereof I speak. I taught in a school down in Illinois, which was struggling to be a high school, before I had finished my own normal school course; and after receiving my normal school diploma, I was for three years principal of a three-year high school, in which I taught from time to time some ten or twelve different subjects, ranging from chemistry and astronomy to rhetoric and Cæsar.

This confession is made quite shamelessly. I was not myself satisfied with my scholastic preparation in the very subjects I was teaching, and, like many of my associates, entered upon a college course as soon as it was possible. In the mean time, and for a long time thereafter, the imperfect high schools of which I have spoken were meeting a real need and paving the way to better things. And many a teacher, who had himself dreamed of a college course which he had never been able to achieve, went on preparing boys for college, and a few girls along with them, and doing it so well that college faculties took notice and approved of what he had done. It was the old story of Peter the Great, who civilized his people, though himself remaining a barbarian.

As is well known, a similar condition was to be found in the Eastern states as well as in those of the South and West. But here the tradition of the employment of college graduates in high school positions was more influential than in other sections of the country. Throughout the land, indeed, the one influence which most strongly affected the teaching force of the high schools was that of the entrance requirements of the colleges; and this influence advanced rapidly in the last two decades of the Nineteenth Century, as the high schools entered more and more into the field of college preparation. It was powerfully reinforced by various provision for the inspection and so-called accrediting of high schools, chiefly that of the state universities in our Western commonwealths.

As the new century dawned, however, two wholly unexpected agencies appeared on the scene, namely, the Carnegie Foundation for the Advancement of Teaching and the general Education Board. Together they brought about in the country at large a much more sweeping change in high school organization and teaching than could possibly have been accomplished by the agencies that had previously been in the field. Particularly in the

southern states, and hardly less in other sections of the country, these Boards, with their great endowments, brought about changes and improvements in high school conditions which were little less than bewildering in their rapidity.

Parallel with these developments had been the growth of pedagogical departments in our universities. In certain sections of the country, where the normal schools felt most keenly the competition of college graduates for high school teaching positions, provision was made for erecting some of these normal schools into normal colleges, having power to confer baccalaureate degrees, and devoting some special attention to the preparation of high school teachers.

The contention of the normal schools in these cases has been that the colleges do not provide in their pedagogical departments for that practical training in the art of teaching which has come to be characteristic of the better normal school administration of this country. They maintain that if the system of supervised practice teaching which had produced so good results in the elementary schools, were applied to students having adequate preparation, it would furnish to the high schools of the country a better body of professionally expert teachers than could be provided by the regular colleges, with purely theoretical instruction in their departments of education.

Even in states where this movement has proceeded to greatest lengths, the advantage still rests on the whole with graduates of regular colleges and universities. This is largely because of the general preference of high school authorities, particularly in the larger centers of population, for teachers to whom there can be applied, in the fullest sense, the term "college bred", an expression which carries with it something like a magical connotation. It is partly because of actual practice teaching which the colleges have conducted in some measure, though against great difficulties.

While these various movements affecting high school teaching have been in progress, the high schools themselves, in their relation to our educational system as a whole, have undergone a transformation. What is to be remarked particularly is the rapid increase in the attendance upon these schools. Some three or four years ago we found this attendance in the country at large, going

beyond the million mark. Now it is in the neighborhood of a million and a quarter. It is increasing more rapidly than that of our total population, while that of our elementary schools shows no such advance. It requires only a moment's consideration to show that if a rising percentage of our population, already on the way from one to two percent, is in these schools at any given time, where the individuals who make up this attendance remain, say, only two years or three or four and are then replaced by others for similar brief periods—when these facts are considered it is manifest that within a single generation there will be many times one or two percent of our people who will have had some part or the whole of a high school education. We seem indeed to be moving rapidly toward a condition in which one-fifth or one-fourth or even a larger proportion of our adult population will have come under the sway of our secondary schools.

We all know that there are profound economic changes which are conditioning this educational change. And equally we know that a whole net-work of other changes, industrial, social, moral, sentimental, is entering into the new web of life of which these things are a part. Let us mention here only one of these, which is part cause and part effect of all the rest:

The training of the secondary school, with various technical and sometimes collegiate training added thereto, is coming to be prerequisite to entrance upon an increasing number of human occupations. Year by year we find the gates to these occupations closing upon those who have not had at least the equivalent of a high school course. The movement goes forward more rapidly in some states than in others, but it is a forward movement unmistakably. Medicine, engineering, and divinity are in the forefront of this movement. Law is advancing its standards though with somewhat greater caution. The engineering group embraces many professions, and that number is on the increase. Medicine, too, has its subsidiary professions, dentistry, veterinary medicine, optometry, nursing, physical culture in its various forms. I speak in all seriousness when I add the occupation of the chiropodist, that of the masseur, that of the embalmer; for the practitioners of each of these necessary crafts are endeavoring to advance their vocational standards. In other fields the list might be greatly extended. To be a certified public accountant,

a bank clerk, a librarian, the secretary of a charitable or a religious organization, it is increasingly necessary that, as a minimum, the candidate should have had the training that the high school affords. For elementary school teaching a like minimum is slowly coming to more general acceptance.

I have made no attempt to inventory the occupations to which this observation will apply. These requirements are rapidly taking form in public statutes. But they are practically in force far beyond their statutory limits.

My argument is simply this, that schools which loom so large in the growing affairs of this country, are schools which must receive unusual consideration as regards the quality of the teaching they are to offer. The case might be indefinitely strengthened if we were to enter upon a survey of the newer movements in industrial education. Where the secondary school becomes itself the center of many forms of technical training, it is altogether obvious that it must break away from all manner of unskilled and amateur practitionership and employ the service of teachers who, from the beginning, are clearly masters of what they teach. This view, indeed, may be taken for granted. A great many things may be taken for granted in the discussions of such a society as this.

I am taking it equally for granted that we are agreed in this, that the discovery of a teacher is as important as his training, since certain personal qualities must be presupposed. I believe we might improve our apparatus for making such discovery, but that is another story. We are doubtless equally agreed that the modern high school teacher must have a scholar's mastery of the subject he would teach. Complete agreement would probably attend us even further than this, and after the pedagogic propaganda of these past decades, it would be generally admitted that even the beginner in high school teaching should know enough of his psychology, social science, and the history of education to read the current literature of teaching.

It may be that this last assumption goes too far. At any rate it brings us to the practical kernel of our discussion.

Two things needed and not commonly found in young high school teachers, with all of their general attractiveness and capability, are first, an educational vocabulary and stock of school

ideas which will enable them to work in with other teachers to make the school a school; and secondly, the ability to handle their own classes without being told too often what they must do next.

The rawness and uncertainty of such young teachers is too obvious to their classes and to their associates, though not so obvious always to themselves. It may wear off with experience, but experience is not experience unless it be interpreted. If they are left to fumble along too far, their whole educational career may, in consequence, pitched on too low a plane. In practice, a high school principal helps the beginners of his staff as best he can; but he cannot do enough, with his other duties, and all of this should have been done before the teacher came to him at all.

What is needed is an equivalent, in the training of our teachers, of the year or the two years, as clinical assistant or hospital interne, which enters into the better training of physicians. We need some general provision for, at least, a teacher's *Probejahr*.

Certain university schools of education may be able eventually to provide such a *Probejahr* in a well manned practice school of high school grade. Even to this day I know of nothing more than partial and inadequate provision of this kind. Our main reliance, in the long run, must be, as it appears to me, provision by the state, under which certain high schools shall become regular schools of practice and training, and shall be provided with a staff of instructors for that particular purpose; and the requirement that, before a high school teacher shall receive his full and regular appointment, he shall have had his term of closely supervised apprenticeship in such a school, or the recognized equivalent of such preparation.

We cannot look for any radical improvement in this direction till the public shall take more seriously the profession of teaching in our schools of secondary grade. But it is hardly possible that we should go on for any length of time, with this great growth of high school responsibility and influence, and not see, along with all the rest, a considerable increase of seriousness in the public view of the teacher-questions which that growth involves.

Present Facilities for the Training of Secondary School Teachers in New England

By Raymond McFarland, Professor of Secondary Education, Middlebury College, Vermont.

Historical.

IT was late in the nineteenth century when special attention was given to the professional training of secondary school teachers. With the founding of Clark University, in 1889, professional courses in education were first organized in New England. Two years later courses in education were organized separately at Harvard University and Mr. Hanus was appointed assistant professor of education in the division of philosophy. The division of education was not established until 1906, with Professor Hanus and Assistant Professor Norton instructors in the department. Courses in education were first given at Harvard at the Summer Session of 1871.

Educational courses were organized separately at Brown University in 1893 and Professor Jacobs has continued head of the department since its organization. Brown was one of the few institutions which early recognized the importance of the subject of education in the college curriculum. Mr. S. S. Greene, as Professor of Didactics, gave a course in didactics at Brown from 1851 to 1854. At Wellesley College courses in education were organized separately in 1898 in charge of Associate Professor Ellor E. Carlisle. The department did not receive the distinctive title of education until the incumbency of Professor McKeag. For several years previous to 1898 a single course in pedagogy was given by the professor of German. During the succeeding year, 1899-1900, departments of education were organized at Radcliffe and Mt. Holyoke; at the latter institution, departmental courses in special method had been given in four or five subjects for about twenty years previously.

At the beginning of the century there were departments of education in six New England colleges only, viz., Clark Univer-

sity, Harvard, Brown, Wellesley, Radcliffe, and Mt. Holyoke. Massachusetts was a pioneer in the movement, for only Brown University is outside the Commonwealth. It is within the last decade that the greatest activity has occurred among the colleges in recognizing the importance of providing for the professional training of secondary school teachers.

The department of education at Simmons College was opened in 1903 in charge of Miss Parker who continued in charge until 1911; since then Dean Arnold has been head of the department. In 1906 a department of education was organized at the University of Maine. This was followed by the establishment of a department of pedagogy at Middlebury College by act of the legislature of Vermont in 1908, the first of its kind in New England. The department was organized at the beginning with two professors, one of pedagogy and one of secondary education. The department is supported by annual appropriations of $6000 by the State. In the same year departments of education were established at the University of Vermont and the Massachusetts Agricultural College. Yale and Rhode Island State College followed with departments in 1910. The second department of education in Maine was organized at Bowdoin College in 1911, and a year ago Smith and Boston University entered the ranks of New England colleges which have departments of education, a total of sixteen colleges.

Teaching Staff.

The several departments of education have been organized with an instructing staff of 18 professors,* 4 assistant professors, and two instructors. Three of the number are women. Harvard alone has an instructing force of more than two members. There are two each at Brown, Clark University, Massachusetts Agricultural College, Middlebury, Radcliffe, Simmons, Wellesley, and Yale.

Courses in Education.

At the colleges where departments of education exist 116 semester courses in education are given. Also at Bates, Clark College,

*In 1912-13.

Colby, Dartmouth, Holy Cross, and Tufts courses in education are given in connection with some other department, usually that of philosophy. In addition, several institutions give departmental courses in special method. Wesleyan and New Hampshire State College give courses in educational psychology. There is, then, at 23 New England colleges an aggregate of 160 courses in education which have to do with the professional training of secondary school teachers.

At each of the colleges where departments of education exist there is an attempt to stress courses which bear directly on the practical side of the teacher's training. A study of problems that relate to organization and management of secondary schools, to special methods of teaching high school subjects, to a study of child life and the adolescent are important parts of many courses of study. At several institutions, notably Brown, Harvard, Wellesley, and Yale, graduate courses in education are given. At Clark University all the courses are of graduate rank.

Practice Teaching.

Little uniformity exists among the colleges regarding practice teaching. At several institutions local conditions do not admit the possibilities of adequate practice teaching for students in education; at several institutions, little use is made of existing possibilities. However, there is apparent a general recognition of the value of practice teaching, under expert guidance, in training prospective teachers for their profession. The colleges with established departments of education which have no practice teaching in connection with their work are Boston University, Clark University, Mt. Holyoke, Rhode Island State, and Yale. Practice teaching is carried on to a limited extent at Bowdoin, Middlebury, and Massachusetts Agricultural College.

It is at Brown, Harvard, and Wellesley that one finds the best opportunities for carrying on this kind of work in New England. Through an agreement between the city of Providence and Brown University graduate students in education may teach in the elementary and secondary schools of the city. Five hours a week of practice teaching is required of the students. The work is done under direction of the head of the department of education and

school directors. Students at Harvard University have opportunity to teach in schools in six surrounding towns. The teacher's work is supervised by an instructor of the department. Practice teaching is a required part of one course in education at Wellesley. Six graduate students may teach each 80 hours in the Wellesley high school. The work of the teacher is supervised by the department instructor, the school principal and the teachers in whose field the practice teaching is done.

Systematic Observation.

The opportunities for systematic observation of teaching are greater than for undertaking practice teaching. Some institutions which have practice teaching also allow a certain amount of academic credit for observation. Observation is carried on at Bates in the schools of Lewiston and Auburn, and credit for part of a course is allowed. At Bowdoin the observation is done under direction of the instructor and school principal, for which part credit towards a course is allowed. Regular credit in connection with a course in Principles of Education is allowed at the University of Vermont. Students of education in the Boston University may visit the schools of Boston and nearby places; reports of the visits are made under direction of an instructor. Part credit is allowed towards the course in School Administration and Organization. At Clark College some credit is allowed in one course for visitation of the Worcester schools. Students at Harvard have opportunity to observe in the schools where practice teaching is carried on; the work is done under guidance of an instructor, with credit amounting to about one-third the total grade in a semester.

Observation of high schools is made a feature of the work of the department of education at the Massachusetts Agricultural College. Credit is allowed on the same basis as other laboratory work. At Mt. Holyoke the instructor furnishes a set of questions to the students who keep note-books of their observations. Observation is carried on in elementary schools as a regular part of three courses, and in high schools as a part of the work in psychology and method, with credit allowed as for any branch of study. Students at Smith College are furnished with a set of

questions to guide them in doing about 25 hours of observation each semester, and they receive a full credit for this part of their professional equipment.

The fullest opportunity for observation, under direction of an instructor, is afforded students at both Brown University and Wellesley but in neither case is separate credit towards a course in education allowed. At Rhode Island State College observation is made in local schools two or three times each term. Five observation trips are made to nearby high schools under direction of the instructor. At Yale there is neither observation nor practice teaching.

Student Enrollment.

In the year 1912-13 there were about seventeen hundred students in New England colleges enrolled in courses in education. The number includes students of undergraduate and graduate grade but it does not include students in departmental courses in method. The distribution of this student body among the colleges is somewhat of an index of the activity of the several institutions in training teachers for secondary school work. The enrollment at Brown was 178 students, 116 of whom were college graduates. In both particulars Brown led the other colleges of New England. Next came Simmons with an enrollment of 173 students. Then followed in rather close order Mt. Holyoke with 156, Wellesley with 153, Middlebury with 142, Bates with about 140, and Boston University with 139. Harvard had an enrollment of 113 and Smith closed the list of colleges whose enrollment of education students exceeded 100 with a list of 103. Above three-fourths the entire enrollment was at these nine institutions.

The geographical distribution of the students—according to their college—places Massachusetts far in the van with an aggregate of 1059 students in education in its colleges last year. Rhode Island had 188, Vermont 187, and Maine 178 students. New Hampshire's enrollment of 24 consists of the students at Dartmouth, just as the total enrollment in Connecticut is made up of the 30 students in attendance at Yale University.

A comparison of the number of students in education in proportion to the population shows that Vermont leads the other

New England States, with Connecticut far in the rear. There is one student in education in Vermont colleges for every 1,907 of its population. In Rhode Island the ratio of student to population is one to every 2,886; in Massachusetts, one to every 3,220; in Maine one to 4,170 people; in New Hampshire, one to every 17,941, and in Connecticut, one student of education for every 46,497 people. In the matter of providing trained teachers for her secondary schools Vermont's foresight is about 24 times as promising as that of Connecticut.

Aims and Standards for Preparation of Secondary School Teachers in New England

By William Orr, Deputy Commissioner of Education, Massachusetts.

(Abstract of address at meeting of New England Association of Colleges and Preparatory Schools, October 31, 1913.)

REASONS similar to those that led to the formation of this Association warrant a discussion of the preparation of secondary school teachers with especial reference to New England secondary schools. The standards of such schools in the several New England states are much the same. There is a frequent interchange of teachers between the several states. This community of interest requires and makes possible a uniformity of practice in the preparation of secondary school teachers and in the requirements of certification for such service.

The limits of the paper. This paper discusses the preparation of teachers of academic subjects in a general public high school in which the teaching force does not exceed five.

(a) These high schools constitute the great majority of secondary schools in New England.

(b) Teachers for the most part begin their service in such high schools.

(c) Preparation for service in public high schools will equip for work in private secondary schools.

(d) While practical arts courses are rightly winning increasing recognition in the general high school, academic studies now constitute the larger part of the program, and are likely to continue to do so. Without reflecting in any way on the importance of practical arts subjects, it has seemed desirable, since the time allowed for this paper makes it impossible to adequately discuss the training of teachers in both kinds of subjects, to consider only preparation for teaching academic subjects.

The equipment of the teacher in the small general high school may be summarized as follows:—

(1) Personal qualities—physical, intellectual and moral—that command the respect and regard of youth.

(2) Command of the subject-matter of certain branches, including knowledge of facts and conclusions; and ability to gather material and organize it for presentation to a class. The teacher should also appreciate the relative importance, for purposes of instruction, of the topics of any subject.

An understanding of the purpose in teaching each subject and a clear definition of its aims.

(3) Ability to manage a class and to efficiently conduct a recitation.

(4) Appreciation of the aims of the secondary school as expressed in terms of its service to the boy or girl, and to society.

(5) Knowledge of the principles of high school organization and administration, and ability to apply these to actual conditions.

(6) Knowledge of the principal educational theories, and leaders—past and present—particularly in relation to secondary education.

(7) Familiarity with educational psychology. This subject should be taught so as to give an understanding of mental processes, in general, of boy and girl nature, and development during the high school period, and of the way in which high school pupils acquire and assimilate knowledge, to the end that effective methods of instruction may be employed, with both understanding and sympathy.

Three groups of teachers are to be considered:—

1. Those who are to secure their preliminary training as undergraduates.

2. Those who can spend a year in graduate study before entering on teaching. The great majority of teachers are found in the former group, as most young men and women are under the necessity of entering service immediately after graduation.

3. Those who desire training after or during service as teachers. It is obvious that individual conditions should determine the extent and kind of such teaching.

Standards of Preparation.

Minimum 1. Persons unfitted for high school teaching, by reason of physical limitations, lack of knowledge or ability to understand and lead young people, should be persuaded to seek another calling or, if necessary, debarred.

2. A high school teacher should hold a Bachelor's degree, gained in a college course following a four years' high school course; the equivalent of a college course to be accepted in exceptional cases.

3. Training in one or two subjects which the student intends to teach, and an acquaintance with related subjects. Thus the teacher of English, in addition to a knowledge of literature and composition, should be acquainted with English history and one or two foreign languages. This training can be best gained if the choice of teaching is made early in the college course. College committees on vocational and educational guidance and college officers, in advising on the selection of programs, should urge intending teachers to plan their work with a view to their proposed calling.

4. In each department of a college, attention should be paid to the best methods of teaching. Recitation courses afford an opportunity for illustrating how a topic should be presented and developed; also how to question a class and to deal with individual pupils.

In lecture courses, clear and orderly presentation of material should be emphasized.

In addition, intending teachers should, under supervision, observe class work in high schools and, whenever arrangements can be made, should do practice teaching under school conditions. Such practice teaching should be conducted and supervised by the department of education and, when conditions are favorable, in co-operation with other departments of the college. The aid and advice of experienced high school teachers are indispensable.

Major Preparation. While the above program is all that can probably be completed by many intending teachers, it is desirable to add the following courses in a graduate year, whenever possible:

1. The aims of the secondary school in terms of its service to the pupil and to the community.

2. Principles of high school organization and administration, illustrated by examples.

3. The history of education, with emphasis on topics relating to secondary education.

4. Educational psychology, particularly that of the adolescent.

A teacher of some experience who pursues courses in training should center attention on the problems of secondary education, including the technique of class instruction and on general theory. He should devote his time particularly to the phases of practice and method in which he lacks skill.

Agencies for training secondary school teachers in New England. Colleges and Technical schools. In these institutions the student may gain command of the subject-matter and also knowledge of method, through class instruction and by observation and practice teaching under supervision.

Graduate courses in Education afford opportunity for a thorough study of educational principles and theories and high school organization, administration and management, with a discussion of methods of practical teaching.

A department of Education is essential to thorough training for teaching in secondary schools.

Normal Schools. Courses are given in psychology and method, with reference to elementary schools. Certain principles here taught apply in the high school.

In the training of teachers in service, use should be made of summer schools; conferences and institutes; supervision, local or state; staff conferences in a given school; and reading circles.

Certification. The establishment of standards of eligibility by requirements for certification is an effective means of securing adequate preparation of secondary school teachers.

Candidates for certification should be tested by personal interview, by credentials from higher institutions, by service in teaching, and, in exceptional cases, by examination.

In determining standards of certification and in administering the system of certification, there should be co-operation between state departments of education and higher institutions of learning. It will probably be found advantageous to vest the control in the State Department of Education.

Measurements of Efficiency in College

President Abbott Lawrence Lowell,
Harvard University.

IN the presence of a distinguished body of educators, there would seem to be little reason for repeating the aphorism so well known, that education is the last of all sub-lunary things to follow the stream of human thought and progress. It is still mainly in the deductive stage. We talk freely about what effect certain methods may be expected to have, but we know little, sometimes almost nothing, of the effect they actually produce. Exact measurements have indeed begun, but they are still in their infancy, and as in all matters of a biological nature, it is much easier to speculate than it is to measure.

I think there is especial need for the determination of actual educational results in America for three reasons. In the first place, Americans are prone to theorize, and to rely on formulas, and this in most directions of public effort; whether it be our reliance on the Constitution, or whether it be a reliance on some more recently proposed device looking to popular vote, or direct primary. We are always expecting some machinery that will save the need of human intervention. We are always trying to set up machinery that will run itself. We are always confident that if we can get the right machinery at work, everything will go perfectly, without any man having put his own effort in it, seeing that it runs straight, and we do that no less in education than we do in everything else; that any man who touches a watchman's clock sixteen times has a good college education, no matter whether the dial is wrong or not; no matter what kind of a clock he touches. We do that in almost everything of an educational nature. It is always a constant shock to see how we ask whether a man has gone through certain forms or proceedings, without asking in the least whether he has profited seriously by them. At the present day, the medical schools of the country

(to give a single example) refuse to admit any man who has not had a course in chemistry. Whether he knows chemistry is absolutely unimportant. He may have learned a great deal of chemistry in his father's laboratory, but he cannot be admitted to a medical school; but if he has once taken a course in chemistry and got the minimum marking several years ago, where he got little or no profit, and the course may have been a worthless one in some college where it was taught, perhaps, by a man who himself never knew any chemistry, nevertheless, if he has taken the course and gotten the minimum passing mark, he will be admitted, although he never knew anything to speak of, and has forgotten all that. Really, I think it is true, and we ought to remember it, because it affects us as educators, strongly, that we are in the habit of relying on formulas.

In the second place, another reason why actual educational results in America are peculiarly needed is that while professing a stern faith in education, we are averse to severe discipline, and have an almost morbid dread of sacrificing bodily health to any possible mental training. This is a matter which it seems to me it is important to emphasize, because I notice that the last thing in education that is deemed of fundamental importance is the mental development of the student. The first thing is, particularly of children, that they shall not study too hard. I have said this to a gathering of medical men, and therefore I have a right to say it elsewhere. The medical profession all over the country is trying to prevent children beginning an education until the time has passed when the foundation of all education ought to be laid. In other words, they are always telling parents, "Do not have your child take anything too young." I remember one physician saying to me that it would be better if no child ever went to school, or was taught anything, until he was between the ages of ten and sixteen; that he would probably learn all that children now learn up to the age of ten. We all know that probably more is acquired by a child before he is ten than in all the years that ever follow. We are certainly in this country morbidly afraid of education. We are morbidly afraid of putting children or young people to any severe effort. The policy of the Old World is entirely different. The policy of the Old World is to set them all running, and shoot those that fall to the rear. That is true

in all their education. There is a continual lopping off, lopping off, and the man who cannot get to this point is denied entrance to the higher walks of life. They may carry it a great deal too far in other countries, but I think we carry it too far in the opposite direction. The result is there is a general tendency to ease up, ease up, and we see it in all directions. We see it in the boys that come up to college at nineteen years old for the education that they ought to have, perfectly easily, at sixteen. We see it all along the line. Therefore it is that we ought to be particularly careful in measuring our results and in seeing that the results we reach are really what they should be.

A third reason why we have special need in America for the determination of actual educational results is that, alone among all modern nations, our measurements of educational proficiency are made almost wholly by the same person who gives the instruction. You are all perfectly aware that in almost every foreign country the child, the young man, the college man or the schoolboy is examined by somebody else than the person who has taught him. His examination in Germany is not conducted by the schoolmaster; it is conducted by the university authorities; in France it is the same thing; it is conducted by persons outside the professor who gives the instruction in the course. You will say to me at once, "How about the Regents in New York?" That is an exception. The examination by the Board of Regents in New York is an exception, but as a rule the proficiency of the student is tested and examined only by the person who has taught him.

You will say to me, "We have entrance examinations to our colleges." Yes, we have, in a very few colleges. Over the most of the country entrance examinations to colleges are disappearing; they are vanishing away. They are not vanishing here, and they will not vanish here, and in two or three other universities, but in the main the entrance examination to college has vanished, has disappeared.

Our experience with the statements received from teachers of schools as to the proficiency of their pupils has not been satisfactory. I am now referring particularly to schools which are not in the habit of sending us boys, and consequently do not know what our own tests and examinations are. We have found

the statements of the masters by no means wholly reliable. A boy comes with the statement that he has been an excellent scholar, and fails miserably in some subject. The statements we have not found to be as reliable as we would like to see them.

Moreover, our own extreme examinations are, of course, unsatisfactory. All examinations are more or less unsatisfactory, but when you have not an exact block of knowledge to examine on, being in different schools and so forth, it is very difficult to frame a fair test. There is a general impression in the community that our entrance examinations have become more difficult in the last generation or half generation, but persons who are very well acquainted with them, who have had to do with preparing boys, give us some evidence to the effect that on the whole they are easier, rather than harder, than they were twenty years ago. Yesterday I was comparing the papers in one subject of the present day with twenty years ago, and there is no question that the papers were more difficult to pass, or they were at least as difficult, and the candidates were given less time to pass twenty years ago than they are at the present day. That is simply parenthetical.

I want to speak about the defects of examination conducted by the instructor in the course. The instructor who conducts his own examination in his own course, does his own teaching and does his own examining, has no standard outside of himself by which he can compare himself. He is in the position of the Biblical persons, who, comparing themselves among themselves, and measuring themselves by themselves, are not wise. In a school, the instructor knows little of the intensity of application of his pupil, but he does know the amount of time spent, at least in school hours, in study. In college the instructor does not even know that. A series of questions addressed by a committee ten years or more ago to instructors and students about the amount of time spent in study in the various courses revealed an amazing difference between the amount of work expected and that actually done. The student probably, on the average, did not very much underrate the amount of time that he spent on study in the courses, but the discrepancies between what he said he spent and what the instructor thought he was spending were two or three to one.

I take it that the development of intellectual capacity by training of the mind is a part, if you will, the highest part, of biological science, and as such it is subject to the biological laws of variation. In his inquiry into human faculty, Galton studied the variation in the marks of the wranglers at Cambridge university, and found that they all conformed to his general law of the probable curve.

If the biological principles apply to education, the biological laws of variation ought to be true, and hence, in any large bodies of pupils, the curve of probability ought to be significant. If in two large courses the marking varies greatly, there must be some reason for it, and the most common reason is that one is easier than the other, or the standard of marking is more lenient. There may, of course, be other causes. The instruction may be superior, or some selective principle may be at work in the pupils that shows that curve. The curve of probability is not an absolute measure, but it is an indication. It ought to put one on one's guard. It is a danger signal; as the lawyers say, it gives notice.

The curve of probability is at best a test only of uniformity of standard; not directly of efficiency. A course may be hard without being effective even in imparting a knowledge of the subject taught, to say nothing of its general effect on the mental development of the pupil. For instance, to learn by heart the names of all the United States Senators for one hundred years would be very laborious, and it would teach nothing of American history that was worth knowing. That may seem an absurd illustration, but not quite so absurd as it seems. The student at Oxford was formerly obliged to learn at least so much of religious history as is contained in a list of the kings of Israel and Juda.

The simplest method of improving the measure of efficiency is the aid of other examiners besides the instructor himself. This tends to give prominence to matters generally deemed important, as compared with the particular habits of the particular instructor, and also it tends to lay stress on the grasp of vital principles, and, so far as experts can be obtained, it is to be encouraged, but it is by no means the only way to accomplish the result. The instructor himself can do it if he conducts his examination aright. The framing of examination papers so as to

measure diligence in work, knowledge of facts and the grasp of principles is the most difficult and the most important single act any college instructor is called upon to perform; that is, to measure the three. It is much easier to measure for any one than more. It requires a knowledge not only of the subject, but of the instructor himself and of the capacity and the habits of his pupils. The examination, at best, measures the teaching and the teacher himself, as well as the students to be taught. If you want to know how efficient the instruction in a course is, read the examination books after they have been marked, and that tells you. If you want a standard by which to measure yourselves, read the examination books in a course as nearly as possible parallel to your own. I remember very well, before being an instructor here, when I was on a visiting committee, one of the instructors gave me that suggestion. Some of the committee went to two or three lectures in various courses, and then we asked the instructor to send us books. This was the suggestion of a former instructor in the department, a professor emeritus. We sent for a number of books. We said, "Send us a couple of A; couple of B; couple of C; couple of D books." We did that in each of the various courses we visited. We read them, and we got an extraordinarily clear impression of the instructor. We were not after the pupils, and we got no particular impression of them, but we got an extraordinary impression of the instructor. It so happened that two of the courses were virtually parallel. I won't mention what they were, as you might discover who the people were, although they have all disappeared from sight, and I believe them dead. In one of them, it was perfectly evident that the instructor had given his pupils a grasp of the meaning of the things he was talking about. The other man, curiously enough, happened to ask nearly the same questions, and it was perfectly evident that none of his pupils had anything but a rote knowledge. They did not understand the underlying principles. It was astonishing, the mental picture we got of the instructor from reading those ten books. We got an extraordinarily exact idea of the instructor's capacity and his power of imparting.

If we are earnestly seeking for a measure of efficiency, means can certainly be devised, whether by a general examination upon

the subject at the end of a period of instruction covering many courses, or by submitting examination books from time to time to colleagues in the same or another institution, or by some other test it would certainly be possible for professors in universities to determine with some accuracy the value of the instruction that they are giving.

So far we have been dealing only with the measure of efficiency of a single course; the measure of efficiency of a course in giving knowledge and command of the subject-matter covered by that course. We have not considered the educative value of that subject-matter, but merely the efficiency with which that subject-matter is given. We need more than that, and we need it very much. We need to know the efficiency of different subjects in developing general intelligence, and in preparing for the various pursuits in life, and that is a far more difficult problem, but one I believe not wholly insoluble. Here again we are in the habit of relying almost wholly on deductive reasoning. It stands to reason, we say, that a familiarity with natural science is the most valuable thing for a physician, a knowledge of history for a lawyer, of economics for a merchant, a skill in handicraft for an engineer, and may I add, of stenography and typewriting for a clerk, if not, indeed, for everybody in the world; and so on. Perhaps these assumptions are true; perhaps they are true in part. But in any case we ought to know by actual measurement whether they are true, and how far they are correct, and with the large number of young people that we are training, we ought to be able to measure results with an elimination of both accidental and systematic errors. We can do this by statistics, following the careers of those who have pursued different studies, with similar grades of proficiency, noting their progress in subsequent studies, professional or otherwise, and perhaps even in their chosen vocations in after life where other favoring or impeding factors do not come in.

If this were done on a really large scale by skilled statisticians, results of vast value might be obtained. As one of my predecessors many years ago said, "The object of statistics is to refute other statistics." It must be done by trained statisticians, or any one is led into courses of error, because they fail to eliminate the systematic errors. The accidental errors in large measure

cancel themselves out, but the systematic errors will show, and vitiate the result, if you are not careful to guard against them. If we take things on a scale large enough, and by a skilled statistician, the result will be of vast importance.

Take, for instance, boys out of school, who have now been going for many years on quite different courses. They are going to college; then they are going to leave college and the university. Something, of course, has been done in this line, but it might be done very much more, on a larger scale. Professor Dearborn did a great deal about schools and colleges in regard to rank. It might be done in regard to those boys who pursued classical, linguistic and commercial education, and their subsequent careers. Of course, you must avoid systematic error. We all know at the present day, if you took those figures crudely, that the classical man would appear best. You know right off that the classical man would on the whole show better in the college or in the professional school. You will find that they not only take better examinations in Greek, but they do better in other studies. Why? It is very simple. Because they have come from the best preparatory schools, and the best preparatory schools are teaching Greek. You have to eliminate errors of that kind. If you were to take that, you would find that the boy who took the classics in his youth, on the average went to a better school; on the average inherited more capacity; on the average had more impulse towards education; lived in a more educated home; had, in general, more advantages. You would have to guard against that.

To those who are interested in measurements of efficiency it is a source of great gratification that the Department of Economics at Harvard has requested the Department of Education to investigate the efficiency of its teaching. As yet, it is too early to speak of the methods that are being employed, for they are only under operation, and some of them not yet, but only projected, but it is fair to say that they promise much. At present, it is enough that by cordial co-operation a step has been taken which bids fair to bring education nearer to the goal of an exact science.

Measurements of Efficiency in Elementary and Secondary Schools

By Frank E. Spaulding, Superintendent of Schools, Newton, Mass.

TODAY the most important and interesting aspect of the educational problem, both in discussion and in practice, presents a remarkable contradiction, —a contradiction that would be amazing were we not so thoroughly inured to contradictions in our profession. Everybody is clamoring for efficiency; almost everybody is claiming efficiency, and constantly increasing efficiency—for that bit of educational effort, whatever it may be, for which he feels himself to be immediately responsible. Yet no other proposition stirs so instant, so vigorous, and often so indignant protest, as the proposition to measure efficiency,—a proposition which means the determination by objective measurement of the amount or degree of that thing which all are seeking, and nearly all are claiming, to the end that we may know whether or not we are really getting or producing what we universally desire, to what extent we are getting or producing it, and the progress that we are making in the direction in which we all want to move, and in which everyone of optimistic temperament thinks he is moving. It would be hard to conceive a proposition more simple, more practical, or more in keeping with the universal desire; indeed, it would seem that such a proposition must grow inevitably out of the desire and claim of efficiency.

Is it Possible to Measure Educational Efficiency?

The protest and attack which the simple proposal to measure efficiency is wont to provoke, are almost invariably and exclusively directed at the possibility of such measurement. Antagonists and protagonists of the proposal speedily find themselves engaged in heated discussion of the possibility of measuring the

efficiency of such things as personality and mother-love,—a theoretical, metaphysical discussion, of the type for which our profession is notorious. There is need of no objective measure to determine the lack of efficiency, the utter futility, of such discussion. The profligate waste of thought, enthusiasm and energy, which such discussion involves, is at once ludicrous and pathetic.

We Are Measuring Educational Efficiency.

We need to come down to fundamental and pertinent facts. In the matter before us, the most fundamental and pertinent facts are these two. First, *we are measuring efficiency all the time, we are measuring all kinds and aspects of efficiency,* each one from his own standpoint. On the basis of the measurements of efficiency that we are all making constantly, we are determining our whole educational procedure, from the most comprehensive plan of organization,—institutional, municipal, state,—to the least detail of schoolroom method. We are basing a state-wide system of secondary industrial education on our measurement and determination of the relatively low degree of industrial efficiency of the long-established, conventional high school, and on our measurement and determination of the relatively higher degree of industrial efficiency of the radically different subjects and methods of instruction that are brought into the industrial schools. We are adopting and discarding text-books on the basis of the measurements that we make of their efficiency in contributing to results that we desire to produce. We are measuring the degrees of efficiency with which instruction can be carried on in classes of different sizes and in various subjects; on the basis of these measurements, we are organizing classes of twenty-five, or perhaps only fifteen pupils, rather than classes of forty or fifty. We are measuring the efficiency of the face and general appearance—attractive or unattractive—of the disposition and temperament, the sympathy, the enthusiasm, the ambition, the whole personality of teachers; and on the basis of these measurements we are engaging or rejecting, reëngaging or discharging, advancing or refusing to advance them in salary and position. That measurements that we are making are grossly crude, even that they are unjustifiable, inexcusable, intolerable, that they are largely or purely subjective and individual, we need

not stop to discuss; the single fact about them that at this moment concerns us is that *they are made, everywhere, by everyone.*

We Must Measure Education Efficiency.

The second fundamental and pertinent fact that we must recognize is this: *The only possible way of avoiding the measuring of efficiency is through the abandonment of all desire and struggle for efficiency;* in other words, *if we will have efficiency we must measure it.*

In the light of these two pertinent, fundamental, and unescapable facts, is it not obvious that there is no room for a practical discussion of the *possibility* of measuring educational efficiency? We are measuring it, and we must continue to measure it. How can we do what we are doing, and what we must continue to do, better; how can we measure efficiency more adequately and accurately? This is the practical question that immediately concerns us. Put in another form, as I am about to take up the matter, the question is, What objective measurements of educational efficiency are there that are of value?

Obviously, this is not a question to be answered by theoretical discussion; it must be answered in practice. We must not even be led astray by the premature consideration of the possibility of scientific accuracy of measurement; not scientific accuracy of measurements, but their practical value, their usability, must be the first concern of practical school men.

But let us come to measurements themselves. Of the score or more that I have here—all of them used in the Newton schools—time will permit the presentation of only a few. These few may serve to illustrate not only the practicability, the reliability and value of objective measurements, but also to suggest something of the extent, the complexity and difficulty of the subject.

A Measure of a School System's Efficiency.

There is yet to be found a single adequate measure of a school system's efficiency. All that is now being done—perhaps all that we can expect to do—is to measure some of the various aspects of a system's efficiency. When its full significance is considered, perhaps the most important aspect of a school system's efficiency pertains to the system's success in attracting and holding pupils

who have passed the age up to which the law compels attendance. Attracting and holding pupils in school is not, of course, the same thing as educating them efficiently; it is, however, a prerequisite to such education; moreover, it furnishes, in the long run, strong evidence of the value of the instruction given, for the judgment of youth eager for the activity and independence of the unschooled world is not prone to over-rate the school's service.

Moreover, the significance of a school system's success in holding pupils beyond the compulsory age is not limited to the instruction afforded voluntary attendants; it is almost or quite as significant of the instruction given those compelled to attend. For whether a child remains in school after he is free to leave, depends at least as much on what the school has done for him as it does on what the school now offers.

The measure of the efficiency of the Newton school system in attracting and holding pupils beyond compulsory school age during the last eight years is shown in the three small charts making up Chart I (page 229). The first of these small charts shows the percentage of increase each year over the numbers of 1905—which are taken as the constant base of reckoning—of voluntary attendants, children over fourteen, and of compulsory attendants, children between seven and fourteen.* It appears at a glance that the percentage of increase of voluntary attendants has been much greater than that of compulsory attendants, dating especially from 1907. For the eight years, the per cent of increase of the former type was double that of the latter. The wide range of vocational courses, both commercial and industrial, that were developed from 1905 to 1910, together with radical changes in the internal organization and administration of the schools that were brought about within that period, furnishes the explanation of this rapid improvement in efficiency.

More definite measures of the Newton school system's efficiency in attracting and holding voluntary attendants are shown in the second and third small charts on Chart I. The first of these two small charts—the middle one of the large chart—shows the ratio of voluntary attendants over fourteen to compulsory attendants dur-

*The law compelling attendance of illiterates up to sixteen years of age has no appreciable effect here; for in Newton, the number of illiterates between fourteen and sixteen is always so small as to be negligible in a measurement of this kind.

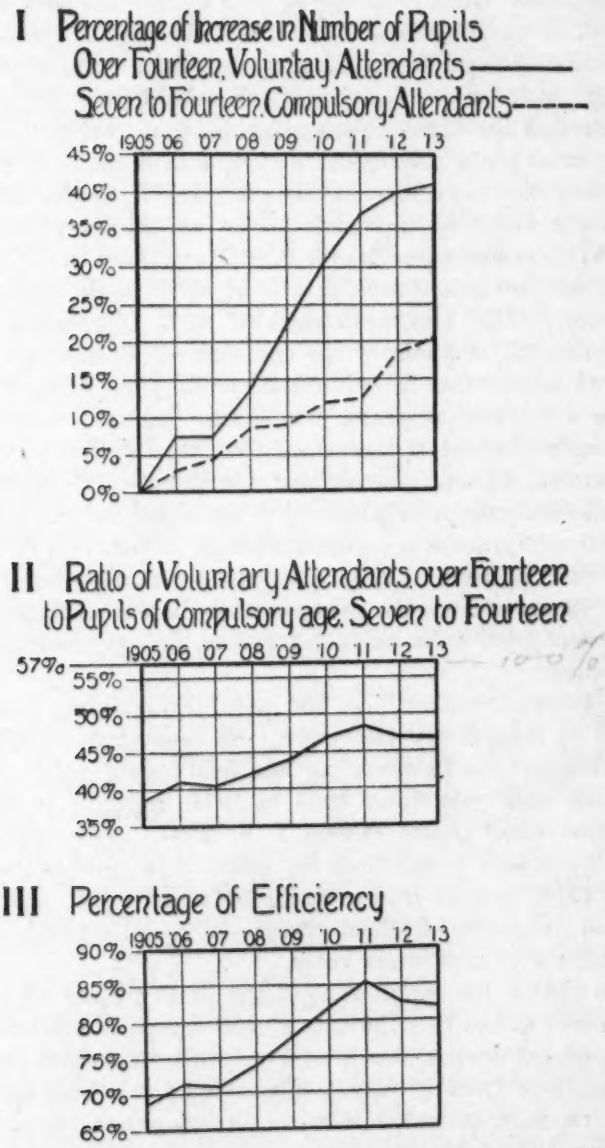

Chart I. **A measure of a school system's efficiency through its success in attracting and holding pupils who have passed beyond the age of compulsory attendance.**

ing each year from 1905 to 1913. This ratio is seen to increase from 38% in 1905 to 48% in 1911, the highest reached within the period, then to drop to slightly less than 47% in the two following years. The explanation of this drop will be given later.

Note that the highest percentage indicated on this small chart is 57%. This is approximately the maximum possible ratio of voluntary to compulsory attendants; that is, under normal conditions, it would be impossible to get into the school system more than 57% as many pupils over fourteen as there would be between seven and fourteen; hence, a ratio of 57% would indicate 100% efficiency. This maximum ratio of 57% is calculated on this basis, that the compulsory age embraces children of an age-range of seven years—that is, children of seven, eight, nine, ten, eleven, twelve and thirteen years, while the voluntary attendants are practically confined to a range of four years,—that is, to children of fourteen, fifteen, sixteen, and seventeen. The comparatively few who continue in school beyond the eighteenth birthday would approximately make good the shrinkage in numbers of the upper years due to death. With this understanding of the chart in mind, we see at once the progress made in the years covered, also the progress yet to be made before the highest possible efficiency is reached.

On the basis of 57% as the possible maximum ratio of voluntary to compulsory attendants, the percentage of efficiency of the school system in attracting and holding voluntary attendants, is shown each year from 1905 to 1913 inclusive in the last of the three small charts (Chart I, p. 229). This percentage of efficiency is seen to rise from not quite 68 in 1905 to slightly over 85 in 1911, then to drop to 82 in 1912 and 1913. Expressed in the familiar terms of school grades, the school system's grade was raised from *D* to *B* in six years.

But what is the significance of the slight falling off in the last two years? Does this indicate a real decline in efficiency? No; this apparent decline was brought about by a sudden disturbance of conditions from without. The first of the three small charts shows an unprecedented increase in compulsory attendants for the year 1912; this excessive increase was due to the influx of over 200 children from a Parochial School, most of whom were of compulsory age, scarcely any over fourteen. Such an abnormal

increase, equal to about double the normal increase of compulsory attendants, was sufficient to affect materially the ratio between compulsory and voluntary attendants.

This artificial disturbance and its effect make it clear that such measurements as these must be checked up in the light of a knowledge of conditions under which they are made. In an industrial center, a season of prosperity, in which there is strong demand for youthful laborers, will tend to reduce the number of voluntary attendants in the schools, while a season of industrial depression will tend to have the opposite effect; thus the ratio of voluntary to compulsory attendants may be made to vary markedly through influences over which the school has no control. So, too, the different economic and social conditions of two places should be taken into consideration when comparing the attracting and holding efficiency of the school systems of those places. These measurements show degrees of success, but they do not show degrees of difficulty in attaining success.

Measuring the Product of a Year's Work.

Chart II (p. 232) shows measurements of quantitative accomplishment of a year's work in the several grades of the Newton elementary schools for the last school year, 1912-13. Accepting one grade as the normal accomplishment of a year's work, the excess and the deficit, expressed in hundredths of a grade, are represented respectively by the bars extending to the right and to the left from the median line of the chart. For every pupil-year of work in the first grade there was an accomplishment equal to seven-hundredths less than one full grade, or .93 of a grade; for every pupil-year of work in the third, fourth, and sixth grades, there was an accomplishment of six-hundredths more than one grade of work; the average accomplishment for the city, all grades, per pupil-year of work was three-hundredths more than one grade.

Perhaps the most striking thing on this chart is the accomplishment of ungraded rooms—that is, rooms for misfit children, mostly classed as backward; this accomplishment, equal to eighty-hundredths more than a grade for every pupil-year of work, could only be indicated, not represented, on the chart. While the ungraded classes were scarcely two-thirds as large as the average,

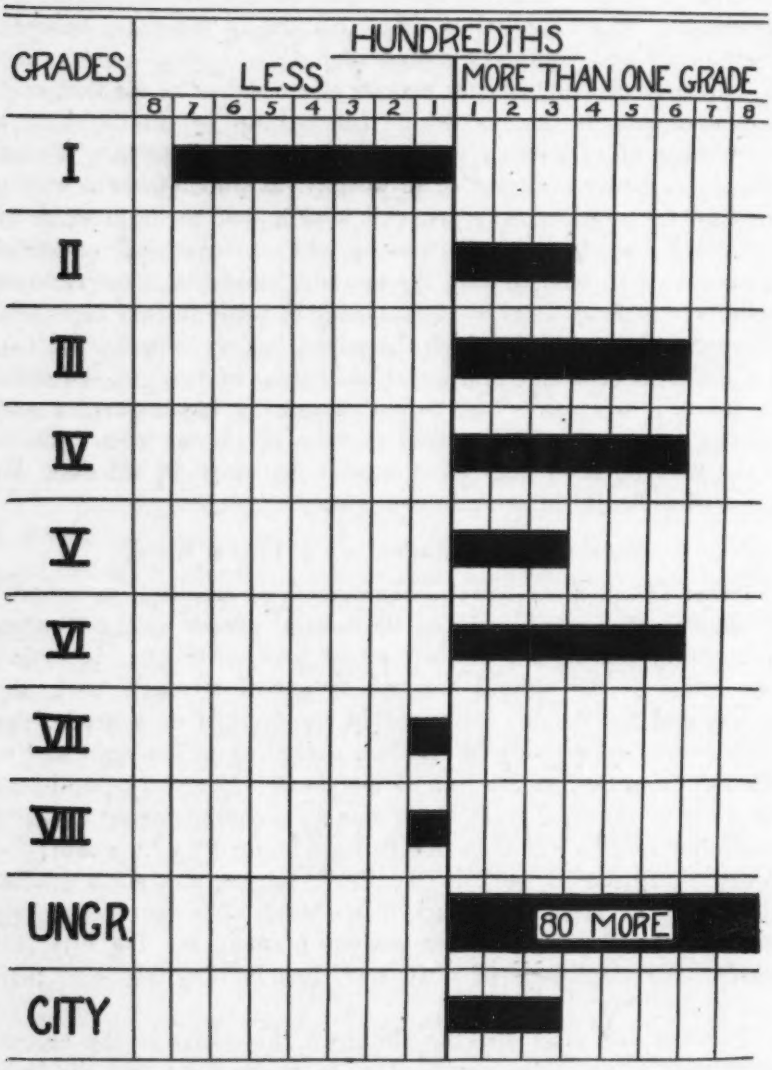

Chart II. Showing the average accomplishment by grades for each pupil-year of work, Newton elementary schools, 1912-13. Assuming one grade as normal accomplishment for a year's work, only the excess or deficit is here represented.

and while they were in charge of relatively high salaried teachers, making the cost for a pupil-year of instruction higher than in any of the regular grades, the cost of a pupil-grade of achievement was lowest in these rooms, owing to the greatly superior pupil-accomplishment.

As courses of study are constructed, the satisfactory accomplishment of each grade is supposed to require, on the average, the same time as every other, that is, normally one year. This chart shows to what extent this supposition is justified in practice. The first, seventh and eighth grades seem to be more difficult of accomplishment than are the others; the largest difference lies between the first grade, on the one hand, and the third, fourth and sixth on the other. A child in any one of the three last named grades accomplishes in a year thirteen-hundredths, or 14%, more than does a child in the first grade. Should the same ratio of accomplishment to work be shown through two or three years, this would indicate the need of better adjustment of the grade requirements.

The ten school districts composing the elementary school system of Newton are each striving, like so many branches of an extensive manufacturing plant, to make a creditable achievement. The achievement made by each district for the year 1912-13, expressed in terms of grade-accomplishment for each pupil-year of work is shown on Chart III (p. 234). As in Chart II, only the excess or deficit of accomplishment, compared with one full grade for a pupil-year of work, is indicated on the chart,—the excess, expressed in hundredths of a grade, shown by bars extending to the right, the deficit by bars extending to the left of a median line.

It appears that in districts 6 and 7 just one grade was accomplished for each pupil-year of work; the double district, 3-4 is the only one that failed—and that by one one-hundredth—to accomplish a grade per year of work; districts 1, 2, 5, 8 and 10, exceeded the average accomplishment of the city, all other districts fell below this average by two to four hundredths of a grade each.

It is interesting to know that district 5, which shows the largest accomplishment, is the district in which were the ungraded rooms whose superior achievement was shown on Chart II; also that the superior accomplishment of this district was due to those ungraded rooms, for when those are left out of the reckoning

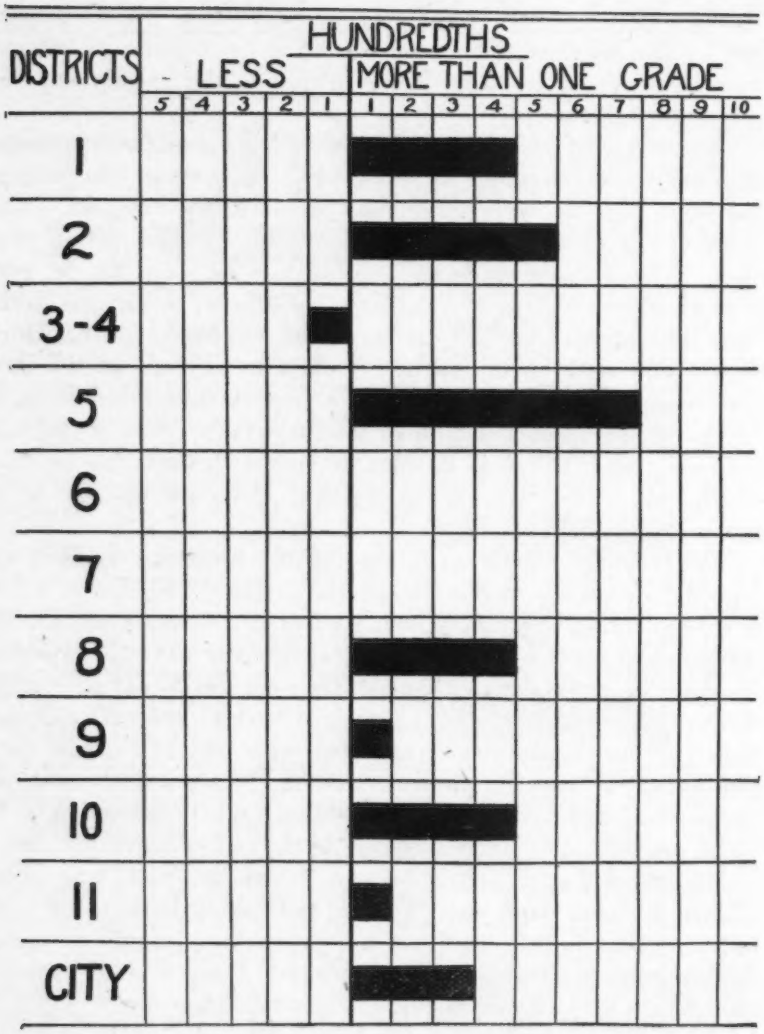

Chart III. Showing the average grade accomplishment per pupil-year of work by school districts, Newton schools, 1912-13. As in Chart II, assuming one grade as normal, only the excess or deficit is represented.

this district shows an accomplishment of one one-hundredth more than a grade for each pupil-year of work, which is two-hundredths less than the average for the city. Could there be a more impressive demonstration of the importance of maintaining ungraded rooms—of course under conditions that require them?

As a stimulus to principals and teachers responsible for the work of the several districts, this chart (III) is invaluable. Its value lies in its objectivity and impersonality not less than in its definiteness. On the basis of his observations, were the superintendent to express his personal opinion to principal and teachers of district 3-4 that their grade accomplishment was the lowest in the city, his statement would be met with incredulity and resentment; but when this fact is revealed objectively and mathematically, their reaction takes the more productive form of determination to find out the reasons for this relative failure and to apply the remedies.

How the grade-accomplishment by districts for the year 1912-13 compares with the previous accomplishment of the same districts, and largely of the same children, may be seen by comparing Chart III (p. 234) with Chart IV (p. 236). The latter chart shows in hundredths of a year the time in excess of one year that had been required on the average by all pupils beginning the school year 1912-13 to accomplish each grade of work that they had to their credit up to that time. In not a single district had the pupils averaged as much as a grade of accomplishment per year of work; the district making the best showing was No. 10, in which only 1.03 years had been required for each grade, equivalent to .97 of a grade per year, or less than the accomplishment of the district standing lowest in this respect in the year 1912-13; the districts making the poorest showing, 2 and 3-4, had consumed 1.19 years for each grade accomplished, which is equivalent to .84 of a grade for each year's work.

There is no doubt that the marked gain in accomplishment in the year 1912-13 was due in some measure to the effect of Chart III which was worked out early in the year and brought to the attention of the principals of the several districts.

Measuring Costs of Production.

In every productive enterprise that is managed efficiently there

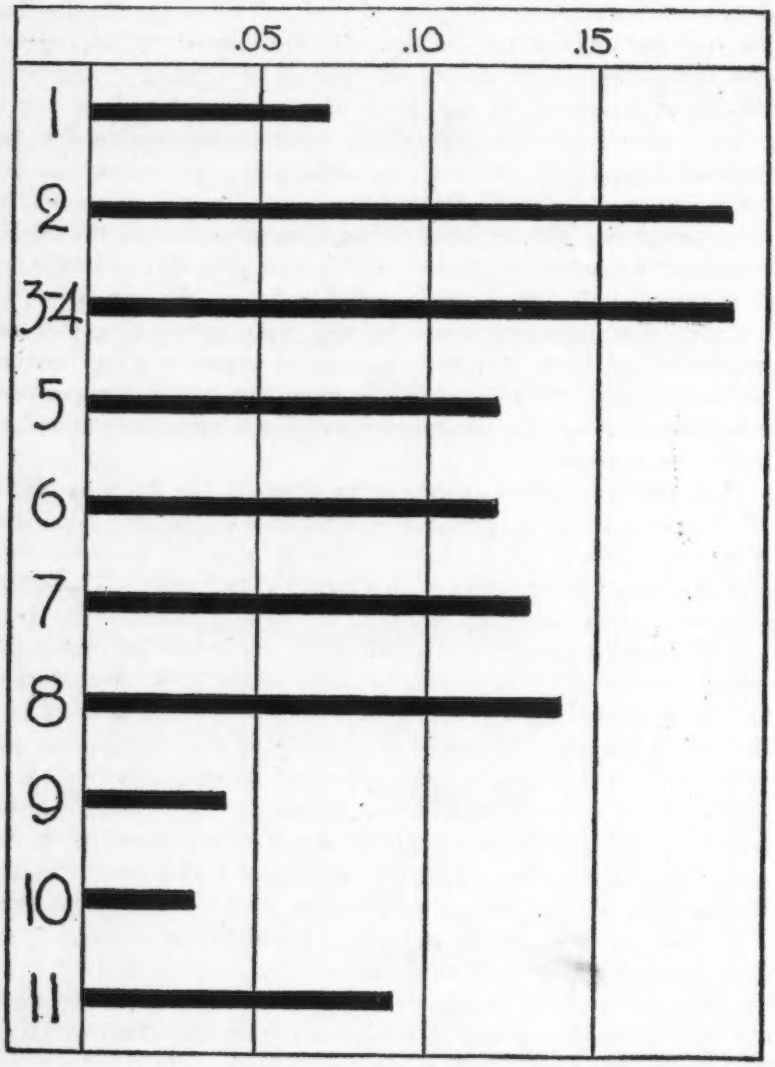

Chart IV. Showing in hundredths of a year the time in excess of one year that was consumed in the several Newton elementary school districts in the accomplishment of each pupil-grade of work—in bringing pupils up to the point reached at the beginning of the year 1912-13.

is careful reckoning of the cost of each unit of product. In our school enterprise the product may be rated in terms of grades accomplished. Chart V (p. 238) shows by districts and for the city the cost of teaching that resulted in one grade of accomplishment, both for the year 1912-13 and the average for five years preceding that year. Although the cost of a pupil-year of instruction was uniformly more in 1912-13 than the average for the five preceding years, owing to increased salaries of teachers, the results as indicated by the grades accomplished were so much larger that in every district there is shown a reduction in the cost of units of product.

This chart makes easy impressive comparisons of unit costs among the districts, between each district and the city average, and over a period of years in the same district. Such comparisons stimulate and direct analyses of costs, of conditions that determine costs; such analyses, and only such analyses, lead to the intelligent reduction of costs.

Measuring the Quality of the Product.

We have been treating the unit of accomplishment, the grade, as though this unit were uniform, as though the accomplishment of a grade signified that a definite quantity of work had been done, and that of a definite quality. We know very well, however, that the grade is not strictly uniform, either in quantity or in quality; no two pupils covering a grade even under the same teacher make achievements that are identical either in quantity or in quality, and between the best and the poorest pupil that is "passed" there is always a wide difference. More than this, the grade achievements with which we have been dealing have not been checked or influenced by uniform examinations for promotion. No such examinations have been given in the Newton schools within the present generation of pupils. Teachers, under the supervision of their principals, are responsible for their pupils' advancement, and their certification of advancement is accepted. Under these circumstances, is it not quite possible that the teachers of certain districts—ambitious to make a good showing by the quantity of their achievement, "passed" pupils who would not be "passed" in other districts, or have taken pupils superficially over a large amount of work, thus sacrificing quality to quantity? In other

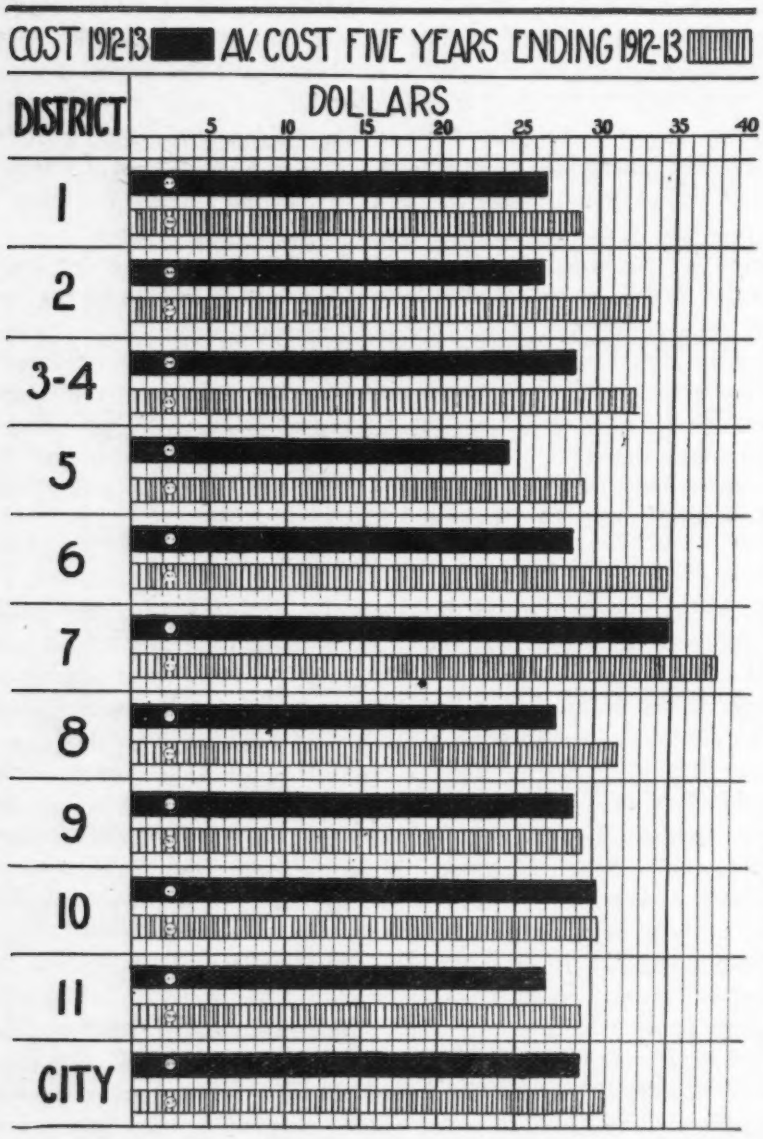

Chart V. Showing by school districts, Newton schools, the average cost of teaching that accomplishes one pupil-grade of advancement. Small circles within the bars have no significance in this or in following charts in which they occur.

words, could the quality, or the real value, of the grade accomplishment that the several districts credit to themselves be measured, might not this reveal achievements radically different from those certified by the teachers—interested parties? Might not such measurements show, for instance, that the product turned out by one district at a low unit cost, on account of the large quantity, was really an inferior article, bought dearly even at a low price?

Realizing all these possibilities, and many more, we have sought a measurement of the quality, or value, of achievement by districts. Such a measure—by no means perfect, but valuable and "fair"—we think we have found in the success—that is in the standing in subjects studied—of the pupils sent by the grammar schools to the high schools. Such a measure, comparative, is shown in Chart VI (p. 240).

This chart shows the relative success—during their first high school year—of the representatives of each grammar school district in all subjects, and in the single subject of English, which is pursued by all high school pupils; this chart shows success by quarters for the year 1911-12 and also the average for four years ending in 1911-12. It is unnecessary to explain here how these measures of quality are obtained; they possess only comparative, no absolute value. As comparative measures, everyone interested accepts them as reliable.

Detailed comparisons, almost without limit, of the comparative quality of work done by the several districts, as shown on this chart, may be made with the quantity and unit costs of work done by the several districts, as shown on Charts III (p. 234), IV (p. 236), and V (p. 238). Merely for illustration, it may be pointed out that the district that stands distinctly ahead of all others on this quality-measuring chart, District 9, stands next to the highest in quantity of achievement in Chart IV (p. 236).

Measurement of the quality of grammar school work by the comparative success in high school of representatives of the grammar schools might be grossly misleading under some conditions, for instance, in a city in which some schools carried nearly all pupils—those of mediocre and inferior natural ability, as well as those of superior talent—through the elementary and on into high school, while others sent only a selected few, and those

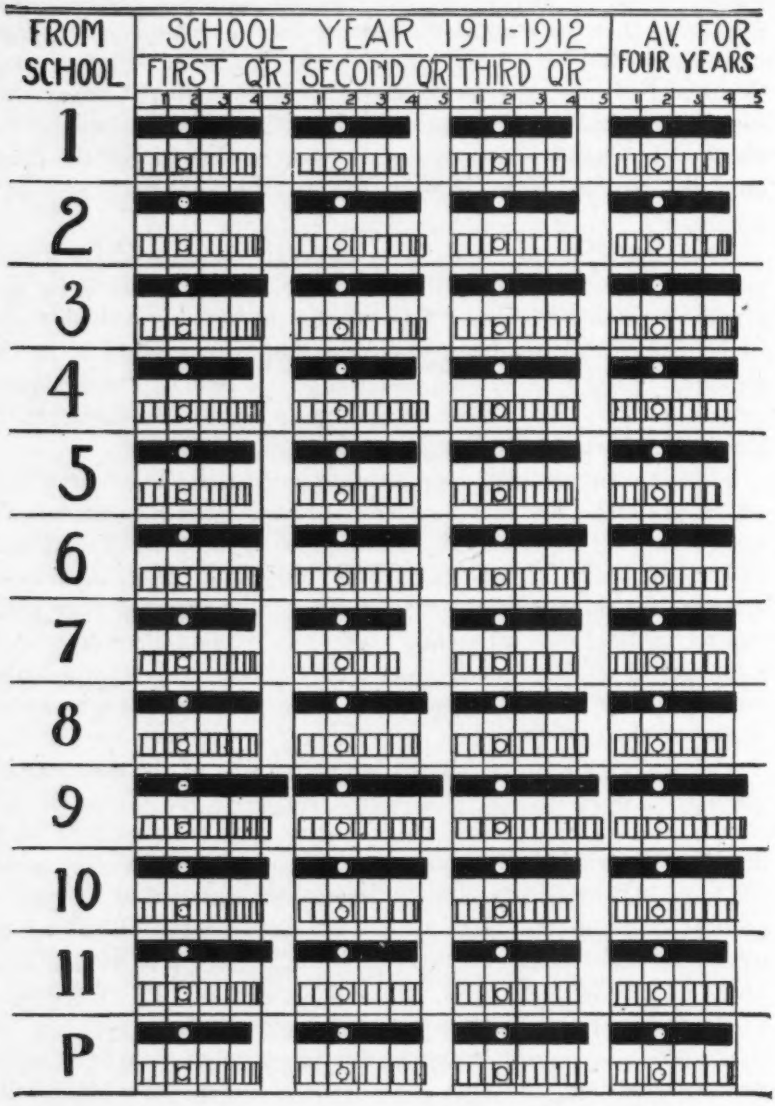

Chart VI. Showing the comparative success of the product of Newton grammar schools as measured by the Newton high schools. Average quality of work of Freshmen in each of the first three quarters of the year 1911-12, also for the four years ending with 1911-12, is represented in English by solid black bars, in all subjects by crossed bars.

generally of superion natural ability, to high school. Such is not the condition in Newton. Here it has long been a dominant aim of every grammar school to send the largest possible percentage of its pupils into some of the numerous and widely varied high school courses—and every school is succeeding in this, none sending less than eighty, some sending almost one hundred per cent of their pupils to high school.

Measuring Educational Values.

The academic discussion of educational values is as futile as it is fascinating. Which is more valuable, a course in Latin or a course in the machine shop? Which is more valuable, an acre of land or a loaf of bread? There are, there can be, no permanent, no absolute and universal answers to such questions as these; but there are and there must be, temporary, relative and local assignments of value to everything, material or spiritual, that man desires. So while we educational practitioners have been waiting on the educational theorists for an evaluation of the various subjects of actual or possible school curricula, we have been determining for our own schools definitely and minutely the relative values of every such subject. And we have done this, for the most part, without knowing it. The school administrator simply cannot avoid assigning educational values every time he determines the expenditure of a dollar.

It may give us a shock—but it will be a wholesome one—to confront ourselves with the relative values that we have thus unconsciously assigned to various subjects. Chart VII (p. 242) shows graphically the relative value that was assigned last year to every subject taught in the Newton High School. It had been determined, wisely or unwisely, thoughtlessly or intelligently, that in that school just then five and nine-tenths pupil recitations in Greek were of the same value as 23.8 pupil-recitations in French; that twelve pupil-recitations in science were equivalent in value to 19.2 pupil-recitations in English; and that it took 41.7 pupil-recitations in vocal music to equal the value of 13.9 pupil-recitations in art.

Thus confronted, do we feel like denying the equivalency of these values—we cannot deny our responsibility for fixing them as we do? That is a wholesome feeling, if it leads to a wiser

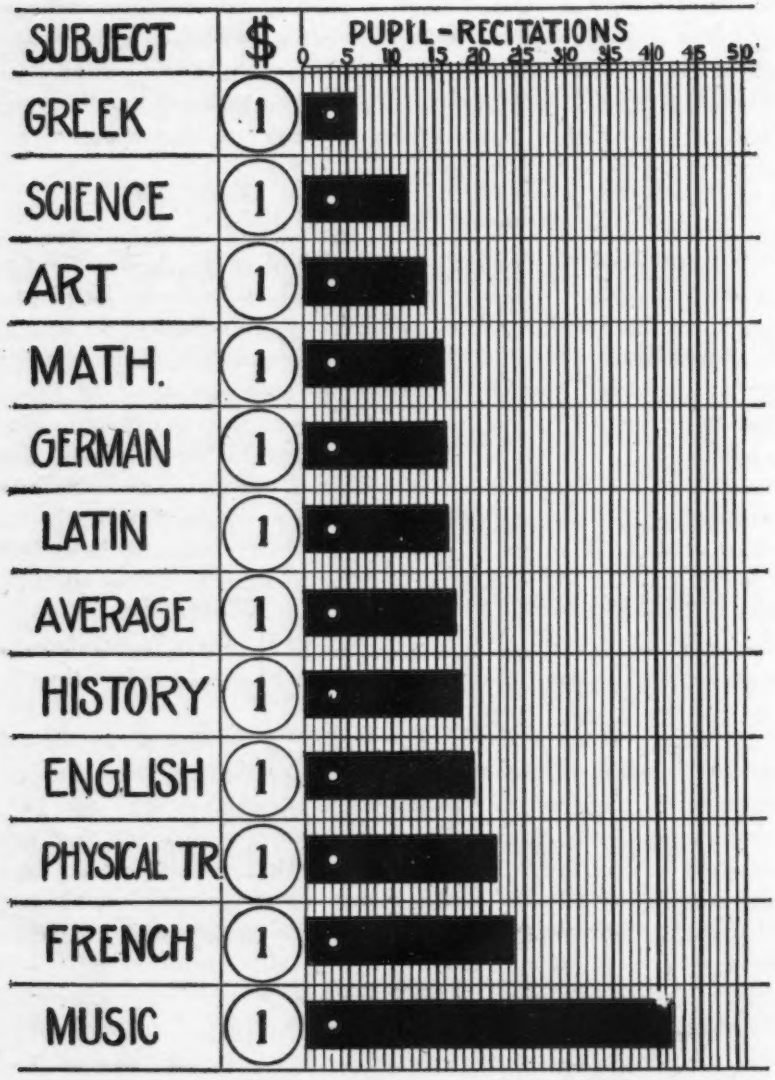

Chart VII. Equivalent educational values in the Newton High School as shown by the purchasing power of one dollar expended for class instruction, 1912-13.

assignment of values in future. Greater wisdom in these assignments will come not by reference to any supposed fixed and inherent values in these subjects themselves, but from a study of local conditions and needs. I know nothing about the absolute value of a recitation in Greek as compared with a recitation in French or in English. I was convinced, however, by very concrete and quite local considerations, that when the obligations of the past year expired, we ought to purchase no more Greek instruction at the rate of 5.9 pupil-recitations for a dollar. So this year, for the first time in the history of the Newton High School, we are buying no Greek; until last year's price can be materially reduced, we shall continue to invest in other subjects.

Measuring and Charting Actual Instruction.

Elaborate courses of study on paper, showing with mathematical accuracy the number of periods per week and the number of years devoted to each subject, give no adequate conception of the actual educational employment of the secondary school youth of a community at any given time. If one week's work of every pupil that was last year in the Newton secondary schools could have been recorded successively by a properly sensitized photographic plate, the composite picture that might have been developed from this record would have shown the pursuit of the various subjects in the proportions graphically indicated on Chart VIII (p. 244). Resolving into one hundred equal parts the education that the Newton composite secondary pupil was then receiving, we find that one-tenth of one part was Greek, while seventeen parts were English; the remaining eighty-two and nine-tenths parts made up in the proportions indicated of the seventeen subjects, from pattern-making to mathematics, that are recorded between Greek and English.

Is the Newton composite secondary school pupil being adequately prepared to meet the composite demands of that society which education should fit him to serve? Some help, at least, in answering this question may be found by studying this composite photograph which should be complemented by a composite of the needs of social service, using this term in its broadest sense.

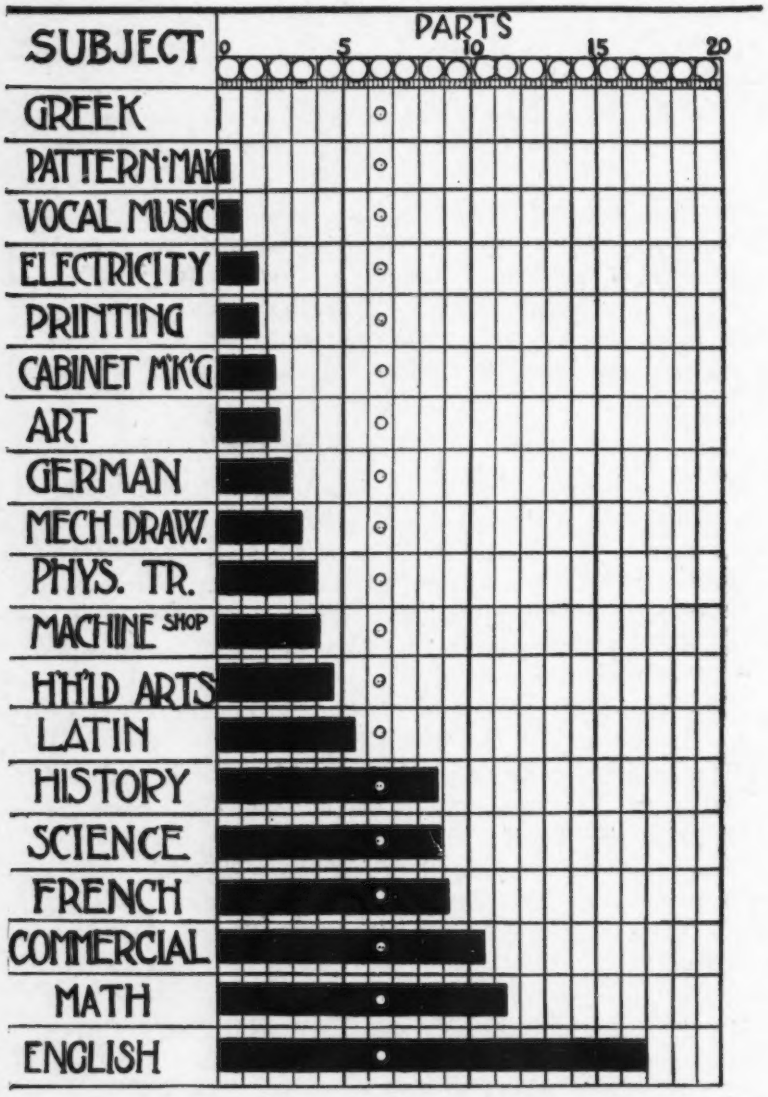

Chart VIII. Showing the ingredients of the education of a "composite" pupil in the Newton secondary schools. Expose for one week the education of every pupil to a properly sensitized photographic plate, and the "composite" result would show ingredients as indicated on this chart.

Adjusting Education to Society's Need of Service.

Just what we mean by preparing adequately our secondary school pupils as a whole to meet the wide range of legitimate service that society is demanding of the on-coming generation can be shown more clearly if we direct our attention to a limited portion of the field of secondary education and to a few types of service that society demands. In the Newton Vocational School the boys are learning certain trades, known as machine shop, pattern-making, electrical, cabinet making and printing. The proportionate distribution of the total number of boys in the school among these several trades is represented by the solid black bars on Chart IX (p. 246). These bars are drawn on the scale of one hundred; that is, the total of the four bars equals 100%, or the total number of boys in the school, of these 44% are learning machine shop and pattern-making trades, 25% electrical trades, and so on.

Similarly there is represented on this chart by crossed bars the distribution of workers in the principal skilled industries of Boston as shown by the last census; for example, the chart shows that 30% of such workers are engaged in the metal trades and 27% in printing and publishing. Note that each school trade is represented on the chart immediately above that actual trade for which the school trade is preparing its pupils.

This chart is of no value in itself; it has been prepared and is presented solely to show the type of chart, or charts, that both the educational and industrial, also the commercial and professional worlds, need. Similar to this chart, there should be constructed a chart, or rather a series of charts, based on adequate data, that would show, on the one hand, the proportionate distribution of workers engaged in industrial, commercial and professional pursuits, and, on the other hand, the proportionate distribution of pupils, including those in private as well as those in public institutions, among various courses of training that definitely prepare for different types of service. Such charts should include the data gathered from a large area; all New England would not be too large an area, anything less than the state would be too small, for the output of any school may easily adjust itself to the demands for service in a region extending

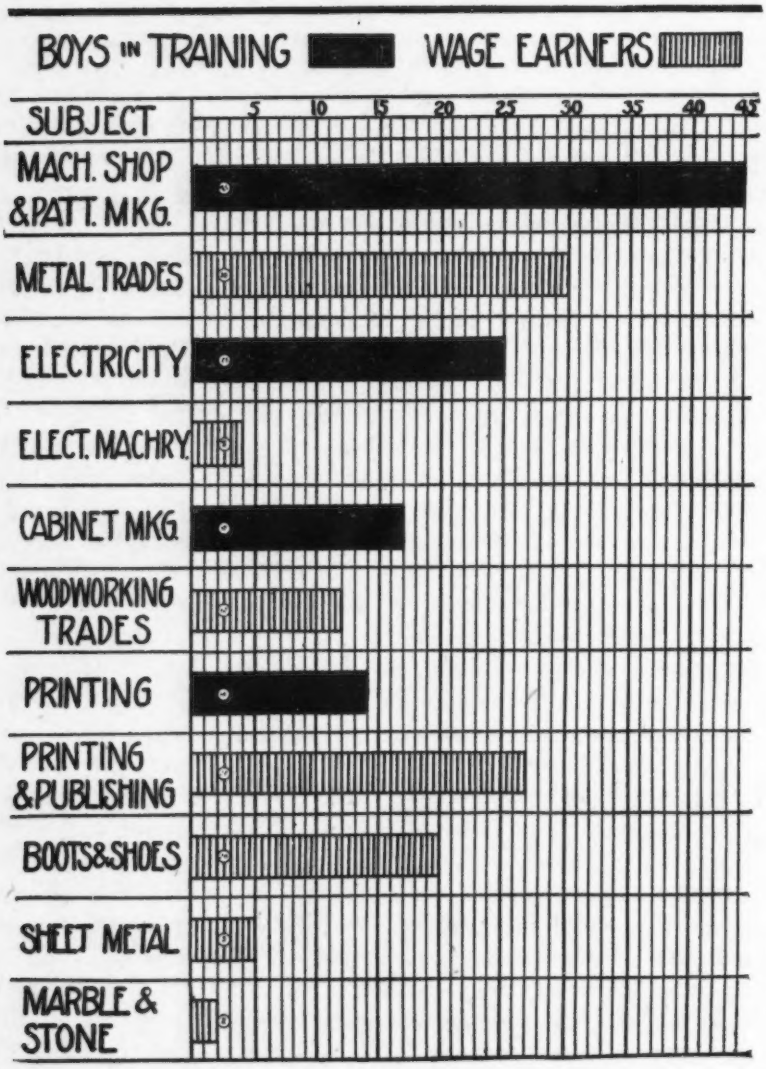

Chart IX. **Showing the adjustment of education to industrial needs. This chart has illustrative value only.**

far beyond the limits of the community, even though that community be a large city, in which the school is located.

It would be highly desirable to have a series of charts of this type national in their scope, and also a considerable number of series, each covering a section of country somewhat unified from the industrial and commercial standpoint; state charts would serve fairly well if all states, or all states in a unified section, were charted.

Just how could such charts be used to advantage? Let us illustrate concretely with Chart IX (p. 246). Suppose this chart represented conditions in the skilled industries and in the trade schools of all kinds, not of Boston and Newton, but of all New England. It would show to the trade schools throughout that region that training for the metal and wood-working trades was being relatively overdone, that training for the electrical trades was being enormously overdone, that training for printing and publishing was underdone, while no training at all was being provided for the remaining trades, boot and shoe, sheet metal, and marble and stone. It would then be incumbent on the schools to bring about a different distribution among their pupils just entering on their training, discouraging entrance on trades likely to be oversupplied, and encouraging entrance on trades likely to be undersupplied with workers, perhaps establishing new courses of training in order to turn out a skilled product capable of rendering the greatest service.

It is scarcely necessary to say that the value of these charts, to be used in this way, would depend on their up-to-dateness. In their educational features they should be revised every year, for the effort of many schools to adjust their training to the demands for service might, if long unchecked, result in a maladjustment as bad as that which they had sought to correct; for example, noting one year that training for electrical trades was being greatly overdone, while that for printing and publishing was being underdone, the correction of this maladjustment might soon result in a reversal of these conditions. In their industrial, commercial and professional features, these charts should be revised as often as the necessary data become available.

If the state and the nation are really in earnest about vocational education and vocational guidance, the incalculable value of

charts like these, both to education and to industrial, commercial and professional interests, becomes at once apparent.

Of What Value are These Measurements?

Do these measurements that have been presented actually measure, do they even aid in determining degrees of efficiency? The only competent answers to this question must come from experience. These measures, and many others somewhat similar, are proving useful to me and to those working with me. The doubt of their value, the certainty of their lack of value, that any one who has never used them may entertain, detracts not one iota from their usefulness to us. No more does the failure to find them useful by one who tries them lessen their usefulness to us. A yardstick is of no use to the man who will not apply it; neither is it of use to the man who applies it with such lack of confidence that he at once ignores its indications, prefering to rely on his own guess at dimensions.

By these remarks I would not be understood to place any exaggerated value, even for my own use, on such measurements as I have shown you; no one can appreciate their crudity more keenly than I. The single point that I wish to make stand out clearly, in conclusion, is this: Theoretical and controversial discussion of the possibility or of the value of objective measurements of efficiency can accomplish nothing useful. Any one who sincerely desires to make a real contribution—positive or negative—to the subject of practical measurements, will earnestly try, with open mind, to measure the efficiency of some of the innumerable aspects of educational procedure.

"Is Scientific Accuracy Possible in the Measurement of the Efficiency of Instruction?"

By George Drayton Strayer, Ph. D., Professor of Educational Administration, Teachers College, Columbia University.

NOTHING has been more common in educational practice than the measurement of the efficiency of instruction. One teacher's work has been adjudged satisfactory, and he has been retained because of efficiency. Another teacher's work has been declared unsatisfactory, and he has been dismissed because of inability to give instruction. Pupils have been advanced or retarded in proportion as they have accomplished results which we consider satisfactory or unsatisfactory, and these products which we have attempted to measure have, of course, been a measure of the efficiency of the instruction given. At times we have changed the whole organization of our schools in order to introduce a type of instruction which was supposedly more efficient. This has been true of elementary schools, secondary schools, and of college and university work. Courses of study and curricula have been modified, as we have thought the results achieved failed to meet the demand which might legitimately be made upon our schools. Nothing is more common in our educational history than for the method of instruction employed in a given subject to be changed in the light of some opinion which declared that greater efficiency was to be secured by a new method. Indeed, there is no part of our educational practice which has not undergone change in response to the judgment of some more or less well qualified person who has declared that the instruction given was in one, or in all particulars, unsatisfactory.

From the standpoint both of teachers and of pupils, the examination, as it has existed, and as we have it today, is the most obvious method employed in judging of the efficiency of instruc-

tion. It might be well, briefly, to examine the results which we secure by this means before suggesting the necessity for greater accuracy in measuring the results of school work. In most examinations it has been customary to give equal credit to each of the questions asked, or to weight the questions without any careful measure of their real difficulty. Examinations have been given in which it was possible for every pupil to answer one of the questions, while in the same examination there might appear another question which could be answered only by two or three brightest members of the class. In such an examination it is not usual to have assigned to each of these questions exactly the same value. Other teachers, if not more conscientious, at least more critical of this system of measuring, have been in the habit of weighting the questions which they assigned. One question is, therefore, by virtue of their judgment as to this difficulty, given a weight two or three times greater than some other. The difficulty with this sort of a test is found in the fact that the judgment of the teacher very frequently fails to coincide with the facts in the case. I once had a group of students rate for relative difficulty the problems to be given to a class in mathematics. They were interested to discover later that certain of the problems which were rated among the hardest proved most easy for the boys and girls who took the test, while other problems, which were thought to be extremely easy, were found, as a matter of fact, to be among the hardest. Wherever any such tests of the relative difficulty of questions asked of pupils has been made, it has been discovered that the judgment of a teacher, even though confirmed by the judgment of two or three others, is apt to be untrustworthy. It is easy, then, to discover that this sort of measurement of the efficiency of instruction works a real injustice in the rating of pupils, and may fail to give any very fair estimate of the value of the work done to a teacher or supervisor.

Not only have the measurements which we have commonly applied, failed because of the failure to weight accurately the various questions which are asked, but also by virtue of the large subjective factor which has entered in the marking of such papers. In experiments which I have tried, I have discovered that the marks assigned to high school papers by competent teachers,

vary by as much as twenty-five per cent of the highest mark assigned. That is, a paper marked eighty per cent by one teacher, may be marked as low as sixty by another. I have found, as well, that these same papers, if re-marked after a considerable intervale of time by the same teachers who originally evaluated them, will show remarkable discrepancies in the marks assigned by the same individual. For example, marker A, who assigned a value of eighty per cent to a paper in mathematics, may, the next time he marks it, call it worth seventy per cent, and may a month later, when he marks it again, call it worth ninety per cent. That is, there is every probability that the individual marker will vary from the mark which he originally gave by just about the same amount as will the several markers vary among themselves. It is desirable for us to be able to secure a test or system of measuring the work of pupils which will enable us to ascertain a value to any product or result of instruction which any other observer could verify, and to report these values with as great definiteness as is possible,—that is, to be scientific in measuring the efficiency of instruction.

In this discussion, as has already been indicated in the preliminary statements concerning the failure to evaluate accurately the results of our work, it is assumed that efficiency in instruction is measured by the results achieved by pupils. Education means change, and the only satisfactory measure of the efficiency of instruction is, I believe, to be found in the accomplishments of those who have been taught. It will not help to obscure the issue by suggesting that there are results of instruction which are unmeasurable. It is customary, of course, for those who have passed through our schools and universities, to tell us that they remember little of the knowledge which was included in the courses of instruction which they took, but that they profited mainly by the methods of work which were used in attaining that degree of knowledge or expertness which now means so little to them. The fact is, that without a perfectly definite product to work for,—without a result in knowledge or skill or method which they diligently sought to secure, they could not have hoped to attain the training, or point of view, or method of work which they now consider so valuable. Nor will it help to declare that there are teachers whose influence is most significant in the

lives of their pupils who yet fail to secure any very satisfactory result in the subjects which they teach. Certainly it has never been discovered that teachers who secure results are less influential, less strong in character, or less to be desired as the friends and associates of their pupils. And again it may be argued that these qualities which have been mentioned will themselves some day be subject to the measurement,—that qualities are, after all, only quantities which are hard to measure.

The problem which we face is, then, briefly stated as follows—Is scientific accuracy possible in measuring educational products or the accomplishments of pupils? Is it possible for us to say not simply that one teacher is better or has done more, but to state accurately how much better the teacher or how much more has been accomplished by the pupils under his instruction. If we are to be scientific, the demand is that we be more exact in our description of the results of teaching, that we use a language which will enable each of us to verify the measurements of others, and that we make our reports in terms of units of measurement which are comparable and understood by all. In order to secure these ends, it will be necessary for us to derive scales of measurement which can be commonly employed.

Before discussing the possibility of deriving scales for measuring the accomplishments of pupils, it might be worth while to add a word concerning scientific accuracy in this field. It is not demanded of us, as I understand it, that we secure units of measurement which will always be applied with exactly the same result by every observer. This degree of accuracy is not, of course, to be found in any field of science. The readings of a thermometer, of a micrometer, or of any other instruments used in the physical or chemical laboratory, will vary with the individuals who make the records. It may be that in the measurement of length, or of weight, or of temperature, that we are, and will continue to be, less variable than in the measurement of educational products. We may claim, however, scientific accuracy for our measurements if we are able to tell just what degree of reliability is to be expected from many observations by the same individual, or from the collected observations of a great many individual observers.

In measuring the efficiency of instruction, we will, of course,

be concerned with group measures rather than with the attempt to evaluate with great precision the accomplishment of any individual. We shall have to deal with the range of accomplishment indicated by the different members of the group, with central tendencies, and with the degree of variability which any group shows. With the technique of measurement of mental and social traits already available, it will be possible for us to determine in the comparison of groups, the reliability of the average or common accomplishment, the probability that the extremes will vary from those which we have discovered, and the degree to which the measure of variability which we have found may be expected to remain constant if we increase the number of observations or measurements taken of the particular trait or product in question.

To return to the main issue,—if scientific measurement is to be accomplished, we must have units or scales of measurement which will enable us to make measurements which are verifiable by other observers. We may not hope to achieve progress except as such measuring sticks are available or may be derived. We have already, scales for measuring handwriting, the quality of merit in English composition written by young people, tests for measuring the ability of children in the four fundamental operations in arithmetic and in reasoning, and a scale for measuring the accomplishments of children in spelling. In general, it may be said that the process of deriving a scale consists in having the samples of the product which we wish to measure judged as better or poorer than each other by many competent judgers. Examples of this type of scale are Thorndike's scale for measuring handwriting, and Hillegas' scale for measuring the quality of merit in English composition. A different type of scale may be derived by discovering the relative difficulty of the accomplishments which we desire as the result of instruction in some particular field. It is also essential in the making of such a scale, that the test be so arranged as to show a regular increase in the percentage of achievement from grade to grade. A good example of this sort of scale is found in the Courtis tests in arithmetic, and in Buckingham's spelling ability, its measurement and distribution. It is impossible in so brief a discussion to go into detail concerning the derivation of scales. It may be

worth while, however, to call attention to the fact that in making any scale it is essential that examples of the product poorer than the poorest product to be measured, and better than the best be included in the samples which are to be graded, and that all grades of accomplishment in the particular field from this very poorest to the very best, be included in the original material which is worked over. The desired scale must, of course, if it is to be most usable, be made up of samples which are different from each other by the same amount. In deriving these points on the scale, a convenient method is found in calling samples equally distant from each other when the difference is noted by the same number of judgers. That is, if A is noticed as better than B by seventy per cent of the judgers, and B is noticed as better than C by seventy per cent of the judgers, and C is noticed as better than D by seventy per cent of the judgers, then the difference between A and B is equal to the difference between B and C, is equal to the difference between C and D. The principle involved that differences equally often noticed are equal unless always or never noticed, is, I believe, commonly accepted. The belief of those who have worked in the derivation of scales that the method which they have employed is applicable generally, is well expressed by Thorndike in his monograph on handwriting, in the following words: "The entire history of the judgments of the merit of handwriting supports the claim that if a number of facts are known to vary in the amount of anything which can be thought of, they can be measured in respect to it. Otherwise, I may add, we would not know that they varied in it. Wherever we now properly use any compatative, we can by ingenuity learn to use defined points on a scale."

For those who would satisfy themselves concerning the possibility of scientific measurement of educational products, two methods of procedure are open, the one supplementing the other. First, it would be of very great advantage to anyone interested in the field to become familiar with the theory and practice of mental and social measurements as available in the recent literature on psychology, sociology, and education. One may, however, test in some degree the validity of the claims which are made for the scales or units of measurement already derived, by applying them himself, or, better still, by having them applied by a num-

ber of teachers. I recently asked thirty teachers in a large school system to measure the quality of work done in English composition by their own pupils. There happened to be available a very large number of papers in English composition which had been filed in the office of the superintendent. We used the Hillegas scale for measuring the quality of merit in English composition written by young people. It must be remembered first of all that these teachers knew nothing of the method employed in deriving the scale, and that they had had no practice in applying it. Under these conditions it is somewhat remarkable, I think, that a majority of the teachers in every case assigned each particular composition to one, or at most to two points on the scale. With more practice there would undoubtedly have been much less of variability. These same teachers were asked later to rate the papers in percentages. There was in this case nothing like the same uniformity or definiteness of judgment. This was what was to have been expected, because the minute the percentage scale was used, the quality of merit which the composition possessed became wholly a subjective matter. So long as the scale was before them, each teacher tried to discover from the samples which were given the quality nearest which the particular composition fell. With this objective standard in mind, they showed very much greater agreement than was possible under the other method of marking. These same teachers, after having used the scale to measure one set of compositions, measured another set which were written by pupils two years farther advanced in the school system. In this second set of measurements, they showed about the same variability in judgments as in the first. It was then proposed that we discover how much progress had been made in two years' work in English composition. Taking all the judgments of all of the teachers, and distributing them for those less advanced and for those more advanced, it was discovered that about ninety per cent of the judgments concerning the quality of work done in the lower grades corresponded with the judgments made concerning the quality of work in the upper grades. Taking into consideration the fact that during these two years at least ten per cent of the children had been eliminated, and that in all probability those eliminated represented the inefficient rather than the capable children, these teachers decided that very

little, if any, progress had been made in the quality of work done in English composition in the two years in question. I do not think that it would have been possible to have convinced these teachers of their own lack of standards, had these papers been graded either by themselves, or by others, in percentages. They accepted a verdict which they reached by means of their own judgment, because they felt confident of the validity of the rating which had been given. I am convinced, however, that after using the objective standard, finding, as they did, the very great uniformity as to the judgment of quality, that these teachers were convinced of the futility of much of the work that they had done in English composition. We may hope, I believe, in other fields to standardize work for teachers only when we apply in some such manner the scales which are now available, or which may be later derived.

It may not be out of place in this discussion of scientific accuracy in measuring the efficiency of instruction, to suggest that teachers have lacked any adequate statements or judgments as to the efficiency of their work. It is customary for those who are charged with the administration or supervision of schools to pass judgment based upon some prejudice or special interest which has little or no relation to the results actually achieved. Indeed, the merit of teachers is often determined by their superior officers with very little knowledge of the success or failure in achieving results which are ordinary, or superior in terms of the accomplishments of children. I am acquainted with a superintendent who has used such scales of measurement as are available, and who has made scales for his own use which were not so carefully derived as those that have been mentioned in this paper. He has found that in measuring the work of teachers who would ordinarily be called satisfactory, that they vary tremendously in the results which they secure. In every case the teachers measured were chosen because in the judgment of their superior officers they had the qualities which would make for success in teaching. In every case these teachers were well trained in the subjects which they were teaching, and their pupils were active enough in their classes to leave the impression that the result ought to be satisfactory. He has told me of a teacher whose results were, even though appearing to be not unlike those of her

colleagues, were actually so unsatisfactory that he suggested one of two possibilities to her,—either that she leave the school system, or that she endeavor in a second year's work with the same class, in the same subject, which happened in this case to be English composition, to secure a result worthy of children one year further advanced. By being able to determine with definiteness the degree of failure, and to measure with equal definiteness the result which he desired to have accomplished, this superintendent made it possible for this teacher to produce a quality of work during a second year which placed her pupils above all of the other children in that school system in the same grades.

There seems to me to be little justification for the attitude of those who claim that our scales or units of measurement are not yet sufficiently refined. A higher degree of accuracy in the application of units or scales of measurement, and better scales, will be derived only when those who are interested in the results of instruction are willing to try out the tools already available. I do not believe that it is possible for anyone to attempt to use these scales without discovering very great variability within any group of schools or classes which are supposedly being taught the same subject by equally competent teachers. This variability is not necessarily, of course, an indication of inefficiency upon the part of one teacher, and of excellence in the work of the other. Such measurement, rather, suggests the necessity for inquiry concerning the differences which appear.

In any attempt to measure the efficiency of instruction, it will be necessary to keep in mind as our principal criterion concerning the success or failure of a teacher's work, the progress made by a group of pupils in a given time. It would not be fair to compare the ability of two classes in mathematics who happened to be near the end in the second year of the high school, without reference to the ability or mastery of the subject which they showed at the beginning of that year. The efficiency of a particular teacher's work must always be measured in terms of the growth which has been brought about during the period under which a particular class has been under his instruction. We may establish standards in terms of the accomplishments which we hope to have children possess as they reach different points in

our school system. If such standards are ever introduced, they will, of necessity, represent the minimum of accomplishment, or suggest a median or modal product, rather than be interpreted as a single absolute degree of efficiency to be reached by all. In other words, the measurement of results will never lead us to demand that all pupils be made equal in accomplishment. In such measurements we will always be concerned with the possibility of moving the whole group forward during each successful period of school work.

The demand which is being made for greater efficiency in public education can, I believe, be made only by attacking our problems in a more scientific fashion. The more truly democratic our society becomes, the more certainly we may expect to find our practices called in question, and the results of our work criticised. It will not be enough for us to declare our good intentions, or to talk in terms of theories of education. The tendency must be increasingly to measure the efficiency or inefficiency of our schools in terms of the results achieved by pupils. What we need now most of all, is an awakening to the possibilities of scientific investigation concerning our problems. In the field of business management, of administration and supervision, as well as in instruction, we must continue to demand all of the available facts reported unambiguously, for it is only by careful and accurate classification of facts and observations, of their relationship and sequences, that we may hope to discover the principles of efficient action. Is it too much to expect that the science of education will be rapidly developed during the next generation? Surely we have a right to expect that men and women trained in science will be eager to apply such methods of investigation, or such results of scientific inquiry as may be made available. I look forward to the day when our profession will receive a recognition which it is not now accorded by virtue of the scientific accuracy which characterizes our discussion of the problems of education, and which lies back of our educational procedure.

Examination Questions for Dickens's "David Copperfield"

MAUD E. KINGSLEY.

1. To what department of literature does DAVID COPPERFIELD belong? Give a brief sketch of its author. What place in English Literature does Dickens occupy? Discuss the character of English fiction in the era preceding that of Dickens. What change in the character of English fiction was made by Dickens and Thackeray?

2. Regarding DAVID COPPERFIELD as a type, what are the chief characteristics of Dickens's novels?

3. Point out those passages, scenes, and personages in DAVID COPPERFIELD which are supposed to be autobiographical. From what sources does the author draw his material for his novel?

4. Enumerate ten of the most important persons in the story and mention the most striking traits of character of each of these persons. With what especial scene do you associate each?

5. Relate the plot of which Uriah Heep is the villian and describe the manner in which the other important characters are brought into connection with its development and resolution.

6. Describe the different episodes in the life of David up to the time of his mother's death. What humorous characterizations and descriptions does Dickens manage to weave into this rather harrowing tale?

7. Give a character sketch of Steerforth. Mention each scene in which he appears throughout the story. What sort of an influence does he exert upon David Copperfield? Under what impressive circumstances does David have his last glimpse of Steerforth? What device does the author employ to make the description of this scene most effective?

8. Enumerate the women of the story and draw delineative pictures of each of them. To what extent does each help in shaping the career of David? Give a character sketch of the one in whom you are most interested.

9. "Dickens's novels are written to show that true nobility may dwell in the hovel as well as in the palace."—Which character of this novel and what episodes prove the truth of this assertion?

10. From DAVID COPPERFIELD, describe the life of a man who is *"waiting for something to turn up."* How does the story of Mr. Micawber end? What mental pictures of him did you have after you had finished the novel?

11. Describe the scene during which Traddles reappears in the story. Show that the man is developed naturally from the boy Traddles. What characteristics of Traddles make him pleasing to the reader?

12. Name all the characters connected with *Yarmouth* and

briefly characterize two of them. Describe the home of Peggotty as it appears at David's first visit there.

13. Which do you consider the most powerful scene of the story? The most humorous? The most fantastic? The most pathetic? The most revolting? The most overdrawn? Select ten scenes which you think are most suitable for class reading.

14. Relate a happy incident of David's childhood. Relate an incident of David's school days which will illustrate Steerforth's selfishness and overbearing insolence. Relate an incident that will illustrate Steerforth's charm of manner?

15. Describe the home life of *Uriah Heep*. Had he any sufficient motive for his villainy? What pictures of him do you have in your mind? Of what is he a type?

16. Compare the woman characters of this novel with the women of other novels with which you are familiar. Give reasons and cite incidents from DAVID COPPERFIELD to justify your statements.

17. Make a list of five of the most important incidents of the period during which David was connected with the law and relate in full one of these incidents.

18. By citations from the novel under consideration, justify the following criticism:—*"The author sees the humorous side of everything, and by a simile or metaphor, as fantastic as it is unexpected, and by the felicitous phrase or epithet, he makes his reader laugh with him."*

19. Describe the London in which David lived. What places besides London are connected with the story of DAVID COPPERFIELD? Give the location of each place and designate those episodes of the story which are enacted at each.

20. What idea of the cheap schools of Dickens's day do you get from this novel? What idea of the law courts? Of landladies? Of the life of a poor apprentice? Of the treatment of debtors? Of an English prison?

21. With whom is each of the following expressions associated?—*Janet! Donkeys! Waiting for something to turn up; Barkis is willin'; Lone, lorn creetur; One of ten; I never will desert—*

22. Reproduce, in words, your mental picture of the town of Yarmouth, of the view from David's window at Blunderstone Rookery; of Mr. Dick; of Peggotty, the nurse.

23. Describe fully and clearly five pictures that might serve as illustrations for an illustrated edition of DAVID COPPERFIELD.

24. Tell the story of Betsy Trotwood. Enumerate her eccentricities and her virtues. What are your feelings towards her as the story develops?

25. In what way does the reader learn of the later history of the Micawbers, the Peggotty family, and of Mr. Pell? Describe David and his home as you see them in the last scene of this novel.

American Notes—Editorial

Prof. Frank M. McMurry of the Teachers College, Columbia University, speaking at the convention of the Essex County Teachers' Association in Tremont Temple, Boston, recently, made some very trenchant remarks upon the lack of proper training and the general unfitness of the teachers in the public schools of the United States. He is reported as saying that teachers as a rule are "absolutely crude" in the field of education, that the methods ordinarily used today are "thoroughly bad" and that the persons getting the highest salaries are not earning their money.

His subject was "Standards for Judging Instruction and the Method of Applying Them." He wants a curriculum that will emphasize the pupil, not the teachers, that will stimulate purpose, selective power, initiative, and the faculty to organize and group. Here are a few of his utterances:

"I doubt if we know how crude we are in the field of teaching. We really are absolutely crude. I can prove that simply by the fact that we have not yet decided whether we should judge the value of instruction by observation of the child or by looking at ourselves."

"Knowledge is not a standard of success, it is only one of several elements."

"Instruction must be judged by its main purposes, by the main things we are after, the things we want to accomplish."

He said that the methods of instruction which he termed "thoroughly bad", have no similarity to the methods used in outside life.

The office of such a critic of an established order of things may not be an agreeable one either to those criticised or to the critic himself. But such criticism is stimulating and useful. In so complex a matter as education there is and probably always will be room for improvement. We need the stimulus of such entire frankness and unsparing directness as we find in Professor McMurry's address. It will cause the blood to circulate faster and to reach parts of the system that have become dormant and inefficient. It will promote growth and new life and on the whole result in new satisfactions, however unwelcome such medicine may be in the taking.

One cause of poor teaching that lies entirely outside of the curriculum and that is in no manner chargeable to the normal schools or the faculties of the teachers colleges, is found in what may be described as a tendency to "inbred" teaching. Physical inbreeding, or intermarrying in the same neighborhood for generations, has caused a serious deterioration in the physical stamina and mental

acumen of the inhabitants of many a community in the older portions of the world. It is equally destructive in the realm of education. A young woman has spent her childhood and youth in the town where she was born,—as her parents and her grandparents did before her. She was sent to school at five or under, and came along up through the grades as inevitably as she came through the whooping cough and the measles. Her life in the high school was an exact counterpart of her mother's, her sister's and her neighbors'. She did the same things, learned the same lessons, wrote compositions on the same themes, recited the same selections and graduated from the same platform, in the same kind of program and with the same emotions as the rest of her classmates and their parents, brothers, sisters and friends for generations. Now, after, (or even without) a little special training in a nearby normal school, she is adjudged competent to take a school; and as boarding at home seems to be a desirable economy, and as her mother "can't bear to have her go away among strangers", she applies for a position to teach in her own village. In fact her father almost demands it of the school committee. Hasn't he been a citizen of the town for fifty years more or less, and always paid his taxes? Who could have a better right to the school money than his daughter, who has always stayed at home and patronized home institutions and now is prepared for service in the schools that have made her what she is? Why should the committee consider for a moment the application of a stranger who has no claim whatever on the town until all the "home talent" has been exhausted! It is a common story—as though the schools existed for the sake of furnishing a living for the excellent but inexperienced daughters of the taxpayers; and as though the meager salaries paid to the teachers were rewards of merit for living in the town fifty years and paying one's taxes and bringing up a family of children.

This common phenomenon of hiring teachers out of the graduates of the school in which they are to teach is, with an occasional exception a great mistake and a heavy make-weight upon the school system. It is also usually a real and serious injury to the teacher herself. The human mind demands, for its best health, the stimulus of a new environment and fresh associations. To get out of the rut, to leave the old hum-drum routine and mingle with people of different ideals and currents of thought is stimulating and vitalizing. The brain is sluggish unless it is aroused by fresh stimuli. New experiences, varied interests, contact with personalities other than those with whom one has always been associated is necessary if we are to grow broad and develop the best and most efficient type of mentality. There is a sort of doctrine of educational eugenics which requires us to give our school children the benefit of teachers with the highest ideals and the fittest preparation for the great task

of teaching. We must eliminate all provincialism in the appointment of our teachers.

In his Annual Report to the Trustees of Columbia University, dated Nov. 3, 1913, President Butler refers to the Pulitzer School of Journalism, in part, as follows:

"Of the twenty-two non-matriculated students who were permitted to enter, all had been at work in newspaper offices for at least one year. The effect of a student body so constituted, on the school as a whole, was excellent, and from the very beginning the work of instruction has been serious, intensive and effective. Unquestionably, the School of Journalism will have much to learn from experience, but it cannot be doubted that the institution which Mr. Pulitzer's foresight discerned and his benefaction made possible is, already, in the short time that has elapsed since his death, in successful operation. It has become a new source of strength to Columbia University and a marked addition to the equipment of the United States in higher and professional education."

One of the most commendable results of the movement for vocational training in the schools is to be found in the growing popularity of domestic science as a branch of the curriculum. It is surprising that this subject has had to wait so long for a suitable recognition. Nothing is more vitally related to the welfare of the state than the intelligent and economical administration of the homes of the people, including good cooking, hygienic household conditions, economy and taste in the making of clothing, and the observance of the laws of private and public hygiene. Yet until recently these practical things have been overlooked in the planning of the schooling of our children. It has been taken for granted that parents would attend to these things or that the cultural studies would so strengthen the minds and cultivate the taste of our boys and girls that these everyday matters would be properly taken care of without special training. But at last it has been discovered that home economics is a science and quite as important to the average person as astronomy, theology or any other "ology." By careful training our young people can secure for themselves and for coming generations greatly improved home conditions which will contribute to health, happiness, efficiency and length of life. This is a matter that concerns the State as well as the individual. Just at present teachers of domestic science are in great demand. The need is far in excess of the supply. This condition will remedy itself in time. There is also at present somewhat of a scarcity of books and appliances for the proper presentation of this subject. We note but few educational convention programs that give it a place for consideration and discussion. A

group of domestic science teachers recently complained to us of this oversight on the part of the program makers and asked us to call attention to it in "Education." If the old saying is true that "the way to a man's heart is through his stomach" we should all take a hearty interest in this movement which makes so directly for a more scientific and nutritive dietary and the improvement of general home conditions.

BRIEF NOTES FROM THE BUREAU OF EDCATION AND ELSEWHERE.

Senior students in the State Normal School at Troy, Alabama, are specially trained for rural school teaching. Instead of depending on regular text books, the students use the proceedings of the Conference for Education in the South, which contain discussions of actual rural school problems by those engaged in handling them. Each student is expected not merely to be familiar with rural school conditions in general, but with those of one rural school in particular. Professor Edgar M. Wright, who is directing the work, hopes in this way to produce teachers who will be enthusiastic leaders in life in the open country.

The high cost of living and related problems are attacked in a series of home economics lectures at the Teachers' Training College in Baltimore. The following are a few of the practical topics considered: What is the food requirement for one day for a young woman 17 to 20 years of age? A Study of actual lunches that can be prepared for 3 cents and 5 cents. The value of pure food. How does the sanitation of the school affect the health and efficiency of the child? How can we as consumers, influence economic and sanitary conditions by careful buying?

HOMECRAFT COURSE, WADLEIGH HIGH SCHOOL, NEW YORK CITY.

The homecraft course is intended for girls whose interest is in homemaking rather than in advanced literary or scientific study. Graduates are not expected to enter college except for the purpose of specializing along homecraft lines. The course, however, meets the conditions of admittance to the Columbia University School of Practical and Household Arts, if electives are selected with that end in view. All students who expect to stay in school only two years or less are advised to take this course rather than the general course. It is stated that the choice of electives is such that the most needed subjects may be taken at the outset and that if the pupil leaves at the end of one, three, or five terms, her course will have been both educational and practical, and complete in proportion to the length of her stay.

When 500 girls between 14 and 16 years of age in Chicago factories were asked: "If your father had a good job, so that he could have afforded to keep you in school, would you prefer to stay in school or go to work in a factory?" 412 replied that they would still prefer to be in the factory.

The Massachusetts State Board of Education maintains a teachers' registration bureau for teachers desiring positions in Massachusetts. In the past year, the first of its existence, the bureau filled 89 positions at salaries ranging from $2,700 down to $10 per week.

Native children in the Alaska schools, according to the United States Bureau of Education, become so enthusiastic over the personal hygiene campaign that they frequently bring their fathers and brothers to school to have them put through the clipping and cleaning process at the hands of the teacher.

To meet an increasing demand for librarians and library assistants who have had the benefit of technical training as well as experience, the California State Library has planned to establish in January, 1914, a library school. The purpose of this school is to offer to carefully selected candidates, a one-year course in library economy, which is designed to qualify the students for library service. For this training the California State Library offers a well equipped laboratory, having a library of about 165,000 volumes, including its law library; the collection of federal, state and municipal documents; the collection of books for the blind; and the special collection in the California Department. These and other departments are in the hands of skilled specialists and offer varied opportunities for special students, as well as a broad field for the necessary general training. The course of study will include the usual technical subjects of cataloging, classification and general problems of library administration, but the broader educational and literary side of the work will receive special emphasis.

A "Society for the Instruction of Eugenics", recently founded in New York, already has 200 members.

One Idaho county has more than 350 boys and girls organized in sewing, cooking, potato, and corn club work.

Foreign Notes

FRANCE: A SCIENTIFIC CENTER. The Museum National d'Histoire Naturelle is one of the greatest scientific institutions in the world, as well as one of the oldest. Founded in 1793 at the beginning of the French Revolution it was fostered when other schools and universities were destroyed, so that it has an uninterrupted history covering more than a century.

In accordance with the usual custom at the opening of the current year, the operations of the museum for the previous year ending June 1913, were reviewed by the Director, M. Edmond Perrier. He noted among other particulars that the museum is organized in eighteen sections which are all in vigorous activity, and derive strength from their close relations. Their influence reaches to every corner of the world; a score or more investigators were named by the director, who were pushing their researches last year in as many different directions, while zealous collaborators were making collections for the museum in remote places. Among the correspondents were mentioned two women, Mme. William Ponty, wife of the governor of Western Africa, who supplied numerous specimens of the fauna of that region, and Mme. du Gast, who sent specimens from Morocco.

The collections of the museum are not for exhibition alone, but for the study of life in all its varied forms, and for the perpetual training of students under the guidance of eminent scientists.

The Government appropriates annually about $220,000 for the maintenance of this work, and it receives many gifts and legacies, of which the largest in its history was $120,000, the bequest of one of its members, Professor Achille Finet, for continuing the herbarium begun under his direction.

SCHOOLS OF BERLIN. A French inspector in his report of a visit to the schools of Berlin mentions among other characteristic features the following: Although the school regulations allow as the maximum, 80 pupils in a one-teacher school and 70 in a class, in schools of more than one teacher, the city of Berlin fixes 55 pupils as the maximum number.

In history special attention is given to the native land. The official instructions require that in the teaching of this branch the endeavor shall be to associate it with the nation, its monuments, and statues; and in particular to show the relations of the Hohenzollern princes with the municipality.

The regulations for secondary schools, say: "For the study of uni-

versal history and of the general history of culture, should be substituted, more and more, the history of Germany and of German society. The history of other nations, in particular of England and France, should be studied chiefly in their relations to Germany.

Attention is called to an experiment in a primary school of Charlottenberg, in the use of the direct method of instruction after the American example, that is the development of intelligence and knowledge by manual training (paper and card work, drawing, modeling, etc.) in strict union with the general instruction.

Gymnastics form an important part of the primary programs occupying not less than three hours a week.

Statistics for the summer term for 1912, show that the primary schools were attended by 224,348 children. These were distributed in 306 ordinary schools, 19 auxiliary schools, and two institutions for those whose hearing is imperfect. The total number of classes was 5,276. A diminution in the size of the classes was reported: the average number of pupils in each was 42.52, as against 48.78 in 1902, and 45.51 in 1906. Some of the lower classes still have from 56 to 59 children in them, although the School Board has fixed 55 as a maximum.

Increase in the Number of Working Women. In Germany according to the latest census, 18,500,000, or 61 per cent of the men, are engaged in earning money; of the women 9,500,000, or 30 1-3 per cent. But while the percentage of men so engaged has remained stationary since 1895, the percentage of women has risen from 25 2-5 to the present figure. The modes of employment are various. Of the 9,500,000 women breadearners, 4,600,000 are engaged in agriculture, 2,100,000 in manufacturing industries, 900,000 in trade and traffic; 1,200,000 are domestic servants; 320,000 are nurses or women employed by the day, for example, as charwomen; the remaining 290,000 serve art, the theatre, the school, or public health.

Simplifying the Teaching of History. At the meeting of the Pedagogical Association of Stockholm, Sweden, held in May, Mr. Carl Grimberg lectured on the following subject: "Simplifying the Teaching of History." The principal thought of the lecture was this: The teacher should not in his class requirements or examinations keep too closely to the textbooks with their many facts which it is often impossible for the students to dissolve.

"Pallin-Boëthius' textbook for the college," said the lecturer, "contains a chapter with the following title: 'Complications and wars in Europe during the reign of Karl VI.' Once only have I been able with certainty to 'draw' out the many facts showing how Tuscany

and Parma, Naples and Sicily changed owners. But it was not when I was a college student and looked forward to the coming examination, and it was not the time when I took the licentiate examination in history. It was when as a probational candidate I was permitted to teach the subject of history. Then I was compelled to put myself into the subject as I had never done before, and after a few weeks of special study I knew so much that it would not have been unreasonable to demand of me the facts which the textbook contained. But when I demanded this knowledge of the students at the examination, I felt myself guilty of spiritual murder."

COMMERCIAL EDUCATION. The growing recognition in this country of commercial interests in the arrangement of university programs imparts interest to the similar movements in European countries. The international society for the development of commercial education which has its headquarters at Berne, Switzerland, reports a summer commercial course conducted at the University of London. This course which drew many students, was devoted specially to the study of the industrial products and the organization of commerce in England. The registration included 119 professors engaged in commercial instruction in different countries, 58 students and 20 business men. The majority of all came from Germany.

At Budapest, Hungary, similar courses were conducted in the month of August, covering among other subjects the economic and intellectual development of Hungary.

HOME EDUCATION. Among the effects of the congresses on home education is the formation of a society of parents at St. Petersburg for the study of the various problems of the home education of children and youths. A series of bulletins have been prepared by the society, and are in great demand in similar circles elsewhere.

A. T. S.

Book Notices

THE TEACHING OF GEOGRAPHY IN ELEMENTARY SCHOOLS. By Richard Elwood Dodge, Professor of Geography, Teachers College, Columbia University, and Clara Barbara Kirchwey, Instructor in Geography in the Horace Mann School and Teachers College. Cloth, 12 mo. 248 pages. Price $1.00. Rand, McNally & Company.

"Until nature study and elementary science are better organized, geography must remain the one science in the elementary school from which the best training in scientific thinking may be secured." This is part of the creed of Prof. Richard E. Dodge and Miss Clara B. Kirchwey as expressed in their new book, "The Teaching of Geography in Elementary Schools." The authors believe that geography should be made vitally interesting to every child and thoroughly worth while in preparation for adult life. There has been, and still is among some people, much uncertainty as to the true content of geography and the proper method of presenting it to school children. In this manual the scope of the subject and its problems are stated in straightforward and comprehensive fashion. Emphasis is placed throughout on geographic ideas as they touch the sphere of the child's experiences. Among the most significant topics discussed are the principles of geography, home geography, geography in rural schools, the relation of geography to other subjects, the use and misuse of maps, observation work, the organization of a course of study, and the preparation and conduct of a lesson. The suggestive outlines for lessons, and the lists of reference books and other equipment will also be found extremely helpful. For the teacher who wishes to vitalize geography work and make it of the greatest practical benefit, this book is brimful of valuable ideas.

GYP. PETIT BLEU. Edited for school use by F. Th. Meylan. Licenciée ès Lettres de l'Université de Lausanne, Head of the Department of French, St. Agatha School, New York City. Cloth, 16 mo. 152 pages. Price, 35 cents. American Book Company.

La Comtesse de Martel Janville, better known to the French under her pseudonym of Gyp, has written many successful novels that treat of the higher circles of society in witty and humorous dialogue and with piquant satire. Petit Bleu is the charming story of a little French girl, educated in a convent about the middle of the nineteenth century. It is edited with a few slight abridgments, and will be found suitable for second year reading. A unique set of exercises, by repetition and drill, fixes in the minds of the pupils many of the conversational idioms used in the text. Adequate notes and a complete vocabulary are included.

A HISTORY OF THE UNITED STATES. By Henry E. Bourne and Elbert J. Benton. Cloth. Maps and illustrations. 598 pages. D. C. Heath & Co. Price $1.00

Two years ago Doctors Bourne and Benton published their Intrductory American History which was based upon the recommendations of the Committee of Eight of the American Historical Association. The Introductory History is intended for the sixth school year. The present volume, intended for the seventh and eight school years, is based upon the recommendations of the Committee of Eight, and interprets them in intelligible terms for actual use. The authors give especial prominence to economic and social history and to the great westward movement; military details are subordinate; matters of mere traditional value have been eliminated, thus leaving space for the introduction of a more full treatment of matters of first-rate importance. The book is pre-eminently fitted to prepare pupils now in grammar schools for intelligent entrance upon the duties of citizenship. In the selection of matter, the interesting manner of presentation, and the centers of interest developed, the book deserves all praise. It is noteworthy that the authors have included an adequate treatment of the West which previous books have generally neglected. The treatment of the South is sympathetic and informing. In accordance with the recommendations of the Committee of Eight, the European background of American history has been kept in mind, and intelligent and helpful use of this appears in appropriate points in the book. Among the numerous histories for grammar grades that have appeared in recent years, the work of Doctors Bourne and Benton is unique. This judgment applies not only to the form in which it is presented, but also to its merits in rendering service of the right sort to the rising generation.

AMERICAN LITERATURE. By William J. Long. Ginn & Company. Price $1.35.

This book aims to present an interesting and adequate record of American literature from the colonial to the present age, and to make the record in some degree worthy of the history and spirit of the American people.

In distinction from other textbooks on the subject, it is emphatically a national work. It proceeds on the assumption that literature recognizes no Mason and Dixon line, no political or geographical boundaries to the national spirit. Whoever has reflected American life or glorified American ideals is welcomed and studied here, without a thought of local pride or prejudice.

The book divides our literary history into four great periods, continuous in their development, yet having each its distinct and significant characteristics. Thus colonial literature is treated as an expression of the profound moral and spiritual ideals of America, and Revolutionary literature as the reflection of its practical and political genius. The

study of each period includes (1) an introduction, giving an outline history of the period, its important events, and its dominant interests; (2) a survey of all the literature of the period, its general tendencies, and its relation to important literary movements in England and elsewhere; (3) a detailed study of all the important writers of the age. This includes an interesting biography of each author, in separate type, a review of all his works, and analysis of his most important books, and a simple but critical estimate of his place and influence in our literature; (4) a brief survey of the minor writers and of the notable miscellaneous works of the period; (5) a summary, with special bibliography, selections for reading, and various other "helps" to teacher and pupil.

WRITTEN ENGLISH. A Guide to the Rules of Composition. By John Erskine, Ph. D., Associate Professor of English in Columbia University; and Helene Erskine, A. M. The Century Company.

The charm of this little volume is partly in its concise directness. It can be carried in the pocket and it tells the reader just what to do about capitalization, punctuation, diction, paragraphing, etc. There are model letters and warnings against common faults and errors.

NORSE TALES RETOLD, for little children and others who care to read them. By Ritzer Freeman and Ruth Davis. A. C. McClurg & Co.

How the World was Made, Ochin's Search for Wisdom, The Making of the Hammer, The Death of Balder; these and other Norse tales are related in simple English, and each tale has an illustrated heading, making an attractive and interesting book for supplementary reading.

A VOICE IN THE NIGHT, AND OTHER STORIES. By Fredereick Hall. The Sunday School Times Company. Price 75 cents.

This attractive book opens with a charming presentation of the story of the child Samuel, told in a way to interest the modern child. Other stories follow, the materials drawn from the Bible, and all pervaded by a religious atmosphere that is tender without being sentimental. A very appropriate book for a Sunday School teacher to use for a Christmas present.

THE STORY OF THE ANCIENT NATIONS. A TEXT BOOK FOR HIGH SCHOOLS. By William L. Westermann, Associate Professor in History, University of Wisconsin. D. Appleton and Company.

The manual here presented was needed because of the great amount of new material that has been brought to light in the past few years affecting our understanding of the life of ancient times. In a scholarly but simple and interesting way the author traces the progress of ancient civilization seeing in it a continuous and unified process. It will take a commanding place among the high school text books of history.

WALKS AND TALKS. By William Hawley Smith. Boston. L. A. Rankin & Company.

This paper covered volume of 224 pages consists of a mixture of quaint philosophy, brief character sketches, pictures from lowly lives worthy of Dickens's genius, essays on education, etc. If, in these busy days, any one has time to while away an hour over its pages he will probably find the time far from wasted. Yet,—well, there are many more purposeful volumes.

THE WORLD WE LIVE IN, or Philosophy and Life in the Light of Modern Thought. By George Stuart Fullerton, Professor of Philosophy in Columbia University. The Macmillan Company. Price, $1.50 net.

This book is the product of a thoughtful mind,—one who has thought out things for himself and does not ask everyone to think exactly as he does. Rather he would provoke thought in the mind of each reader and so promote a spirit and attitude of mind that bit by bit will precipitate the truth in the consciousness of the race. His world, everybody's world, our world and other worlds are brought into the limelight of earnest truth-seeking thought. Any reader will be stronger and clearer visioned for reading these chapters.

WASHINGTON AND LINCOLN, LEADERS OF THE NATION IN THE CONSTITUTIONAL ERAS OF AMERICAN HISTORY. By Robert W. McLaughlin. With portraits. G. P. Putnam's Sons.

This is a very readable book and it does what no other has done, namely, it establishes the relation of those great leaders in government whose names are on the title page. Five great periods of American history are examined and these two master workmen stand revealed. Their work was one and that work was the establishment of a free nation.

Periodical Notes.

Colonel George Harvey inaugurates an editorial department in the November number of *The North American Review*. He discourses with characteristic freedom and pungency upon a great variety of topics, giving full rein to his recognized talent for forceful expression, sane philosophy, wit, and satire.

The leading article of the November *Atlantic* is the autobiography of Abraham Mitrie Rihbany, who twenty years ago was a penniless Syrian immigrant, and to-day occupies the pulpit made famous by James Freeman Clarke.

The November issue of *The Century* might be called a round-the-world number, so much ground is covered by the various articles, stories, poems and illustrations. "The Economic Consequences of Immigration" is the title of a paper, in this number, by Prof. Edward A. Ross, of the University of Wisconsin, on perhaps the greatest problem still unsolved by the United States.

St. Nicholas for November is called "The Fortieth Anniversary Number," and is of no little interest to grown-ups. The four types of *St. Nicholas* cover are reproduced in colors in miniature on this November cover, and are dated, respectively, 1873, 1878, 1884 and 1895. The number also has a timely article by Parke H. Davis, the Princeton member of the Football Rules Committee on "The Full-field Run from Kick-off to Touchdown."

In the November issue of *Lippincott's* Leonard P. Ayers, Ph.D., Director, Division of Education, of the Russell Sage Foundation, New York City, gives us some straight-from-the-shoulder facts about "The Revolution in Education and Its Cause." It's a big, vital subject, and ought to interest everybody.